

ITEMS OF INTEREST.

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ORIGINAL COMMUNICATIONS.

PORCELAIN-INLAY WORK.

Dr. W. E. Christensen, Munich, Germany.

Porcelain-inlay work, though not a new thing by any means, seems to have aroused new interest among progressive dentists, since of late years many improvements, both in the material and in the instruments used for making it, have come into the market.

The new method consists simply in taking an impression of the cavity with platinum foil, pressing the foil into the cavity with balls of cotton, and burnishing it smoothly over the edges. By this method a matrix is made and at the same time an impression of the cavity is taken, and the inlay can be built and baked in this matrix so as to fit the cavity. In this way we obtain well-fitting inlays, and large sections, contours, and even projecting corners of the incisors can be restored a great deal stronger and a great deal better looking ; and the operation can be performed with less trouble to the patient than would be possible with gold or any other material.

The chief objection to all kinds of inlay work is the belief that the cement with which it is set will wash out and leave an empty joint. This danger certainly exists, but, though not entirely obviated, it is reduced almost to a minimum by the high degree of fit and contact which can be obtained by fusing or "casting" the inlay for each special cavity. The heaviest foil used is No. 60 ; skilful operators will soon be able to use much thinner foil, but even with No. 60 the inlay can be made so as to leave no joint at all. This is done simply by slightly beveling the walls of the cavity outward from the margin, so that when the platinum is removed the inlay will fit tightly on the beveled edges of the margin, thus taking up the space occupied by the platinum and making a perfect fit at the margin. To accomplish this the inlay need not rest on the bottom of the cavity, but should only extend sufficiently into the cavity to be retained. When I make inlays in the molars, which I do only for very large cavities—believing that in this way

I obtain the nicest and strongest fillings with the least trouble to the patient—I use very heavy foil for the matrix—say No. 60—and after removing the foil I set the inlay with cement, cleaning out the joint, however, with a pointed excavator before the cement is quite hard; or I let it get hard, then clean it out with a very fine bur, and fill it up with amalgam, which entirely prevents any washing out of the cement.

The methods of retaining the inlays are several. When only one wall has been destroyed, as in labial cavities, the inlay, of course, cannot be made to extend into an undercut. Undercuts may be made, but only after the impression has been taken, and merely enough to hold the cement. The inlay, however, can be made with a retaining-groove in the inlay itself, by placing a ball of hardened plaster-of-Paris on the bottom of the matrix before introducing the body, and scraping the plaster out again after the baking. In this way the cavity holds the cement, and the cement holds the inlay. If that of a corner contour, the inlay can be made to extend into one undercut, which must be made as wide and deep as possible, into the cervical portion of the tooth, provided the tooth is not dead, then, of course, the inlay can be made to extend into the pulp-chamber. Inlays in the large molar cavities are usually sufficiently retained by merely extending into the cavity. The retaining groove may be made in the inlay itself, or, if the tooth is dead, a pin from a porcelain tooth can be baked into the porcelain so as to extend into the pulp-chamber.

The baking of the inlay is a simple process. The porcelain is obtained in the form of a fine powder, like the body for continuous-gum work. I use exclusively the Downie bodies; they come in twenty-four different shades, so that there is no trouble in matching any tooth. The treatment of the powder is similar to that used in continuous-gum work; it is mixed with distilled water to a cream-like consistence, and applied with fine camel's-hair brushes. For its first introduction into the matrix I use a fine-pointed steel instrument, so as to make sure of getting it into every corner, also because in this way it is easier to reach the bottom of the matrix without touching the edges. At the first and second baking the edge must be left free on account of the contraction of the body, and for this same reason the body in the matrix should have a convex surface, as otherwise it is apt to contract the matrix and change its shape. At the last baking, only, the body should touch the edges of the matrix. In the handy Downie crown furnace the body can be fused in from one and a-half to two minutes, so that even a number of bakings will not take much time. The edges of

the matrix serve as a guide for the correct shape of the inlay, and when a large section is to be made the correct size and shape are produced by repeated bakings, and by gradually adding body till the desired contour has been obtained. In making the matrix, a piece of foil must be used sufficiently large to be folded into a triangular shape, or, better, into the shape of a funnel, which is introduced into the cavity with the point toward the deepest portion. The foil, when pressed against the walls with balls of cotton and a pair of stump-tweezers, will spread to the walls without tearing. The burnishing of the edges should be done by hand-pressure only, using a stone burnisher. A piece of India-rubber finally pressed over the entire edge with a uniform pressure will secure an exact impression. The overlapping foil must not be cut away, but is left on during the process of baking. The matrix may be invested in plaster and silex, or plaster and asbestos; if this is done, it will take one to one and a-half minutes longer to fuse the porcelain. I usually get the best results by not investing the matrix, but for the student or inexperienced operator it is safer to use the investment.

MAKING CROWNS.

Dr. C. F. Rodgers, Conneaut, Ohio.

I think the Hollingsworth system of crown- and bridge-work the best so far placed before the dental profession, though its cost is an objection.

I have a system somewhat similar that I believe has merit.

Place pieces of pasteboard around your die-plate, having them wide enough to extend an inch above the plate, this fill very carefully with plaster. When hard you have an impression of your die-plate. Then drill a one-eighth inch hole through the plaster in the center of each tooth, beveling the upper edge. Now, with a sharp chisel cut off each tooth. To make the surface smooth, go over it lightly with a piece of fine sandpaper.

Tie the plaster on the die-plate and directly under each hole is the cusp of a tooth. Now warm both plaster and plate so that it can barely be held in the hand, and heating Mellott's metal to the melting point, pour in each hole quickly till all are filled. When hard break up the plaster and you will have perfect cusps, with a cone-shaped piece of metal attached. Remove them from the plaster, one by one, and cut off the cone of metal and place each cusp in its respective place on the die-plate. When all are

in place warm a piece of base plate wax and place over all; invert the whole and press rather hard against your bench and lift up die-plate, this will leave all the cusps adhering to the wax. Take one at a time and place on the die-plate, with a few strokes of a file the little quarter-inch piece of metal is removed and the cusp is flush with the die-plate. You now have just such cusps as are furnished with the Hollingsworth system. Keep them all on the piece of wax.

When you have a crown to make proceed as with the Hollingsworth system.

That is, make your band to fit the root, and finish the edge that is to go under the gum nearly as you wish it be when finished. Heat the band and immediately force the prepared end in a piece of soft wood and contour the crown while still in the wood. This will preserve the shape at the neck. After contouring, try in the mouth and select one of your little cusps. Articulate properly by filling band with wax and sticking on cusps. Have the band a little longer than you think necessary and file off till the cusp articulates properly. When you have the proper cusp selected, you do not have to make a special die for that crown, simply observe the position of your cusp and swedge cap on the same on die-plate.

When extracting teeth save those having good cusps; if they are too sharp, grind to shape with carborundum wheel, and saw cusp off with bracket saw. When you have thirty or forty of these cusps, cut a piece of tin to fit in a pasteboard box and shellac it on one side. Before the varnish dries place your cusps on it in regular order. Now fill all the little ridges between the cusps in which the plaster might catch and break with wax; oil the whole slightly, and carefully pour plaster till there is at least an inch above the tin. When hard, remove the plaster from the box, pick out cusps, this gives you a model of a die-plate. Send this to any place where they make fine gray iron castings, and for about a dollar you can have a die-plate equal to a six-dollar one.

It is an undeniable characteristic of the human soul to aspire to something higher than itself; to seek to elevate itself or be elevated into an environment more congenial; to widen the horizon of its sphere of observation, increase its power of assimilation and the scope of its plane of action. This tendency is equally ~~true~~ of matters pertaining to the material and the spiritual realms.

ABRASION OF THE TEETH.

Dr. W. E. Driscoll, Manatee, Fla.

I have carefully read your editorial in the January ITEMS, entitled "Abrasion of the Teeth, and the Tooth-Brush." I have seen similar articles on the subject before, and have been looking for a case for over twenty-five years that could be set down as a clear illustration of the theory that people injure their teeth by excessive use of the brush and tooth powder, but I have not found it yet. My search has not been confined to Florida "crackers." We have many chances to inspect the teeth of people in Florida, from nearly every State and civilized nation. I had some twenty years professional experience in two Northwestern States before removing to Florida, yet I have never seen satisfactory proof in a single instance of injury from the use of the tooth-brush and powder. I have seen quite a number of cases where the teeth were worn off much as you describe, but found that in most of the cases they used no powder, and very seldom used a brush, and then not a stiff one, and yet the denudation or abrasion went on when no brushing was done at all. One can imagine how a gritty powder might be used to produce the condition so often described, as you have done, but they have all kept out of my path from some cause. I find that brushing with water after each meal will not keep all stain from my teeth, nor will the addition of soap do so, and I know the majority of my patients have the same experience. If the use, thrice daily, of a wet brush and the average grade of tooth powders would produce such havoc, what would then be the effect of chewing the coarse food that was used by savages? Brushing would be gentleness itself in comparison, and yet we point to savages as having the most perfect teeth in the history of the world, and say our teeth have degenerated from lack of such use as the savages made of them.

I would be glad to see this subject fully investigated, and the truth made so plain we could all see and understand it. If by saying the word I could induce every patient I have had in thirty years, to double the amount of brushing they do on their teeth, I would consider it not only a great duty, but a great privilege, to do them so much good. Only once, in all this long time, do I recall any one who questioned the position you take in your editorial, and that solitary critic said, such teaching would lead people to neglect their teeth, and thus do great harm. But

I confess that I have wondered that your view has gone so nearly unchallenged for so many years. I have just remembered that once when I called on a dentist for a powder to clean my teeth, he supplied me with a powdered emery, but I never used it but once. Do dentists of the Northwest prescribe emery for this purpose?

Some thirteen years ago, at Braidwood, Ill., during a small-pox epidemic, eighteen cases out of twenty-two who had been addicted to the use of alcoholic stimulants died, while nearly every case of temperate habits, where no stimulants were used in the treatment, recovered.

Three years ago, at Chesterton, Ind., where I was then practicing medicine, during the grip, nearly one-half of all cases where stimulants of any kind were employed in treatment died, while nearly every case where no alcoholic stimulants were used made good recoveries.

From these and other similar cases, with unfavorable results from the use of any intoxicating stimulants in the treatment of disease, I sincerely believe that an intoxicating drug used either in sickness or health has done a thousand times more injury than good.

The common custom of mothers and nurses of administering small quantities of *cognac* or other intoxicating liquors is a crime, and ought to be prohibited and punished by law, for it is forcing the appetite for strong drink on these little ones, against their knowledge and will. I am for prohibiting the cause.

W. H. Gray, M.D.

The depth of the ocean can hardly be conceived by the number of feet. We have all walked a mile, and water a mile deep seems almost incredible, yet the Atlantic ocean for hundreds of miles in extent is more than four miles deep. Some parts of the Pacific ocean is still deeper; the South seas are in some parts five miles deep. We generally think of the oceans as water without currents, as rivers, but the most powerful currents of water in the world are in the different parts of the oceans. Though there are other parts so restful and quiet that we find on their surface vast surfaces of sea-weeds and débris, too deep and entangled to be disturbed by wind or wave. In fact, in some of these places, wind and wave are seldom found.

ITEMS.

Dr. Will H. Savage, Clifton Forge, Va.

I fill root canals with beeswax. First remove dead nerve and débris generally, cleanse with peroxid of hydrogen, and then use oil of cinnamon. If abscessed, dress with creasote till discharge of pus ceases. Melt wax into the root with hot instrument. Carbolic acid and iodin are often efficacious in breaking up an abscess.

Paraffin or wax melted on a cement filling before removal of rubber-dam will allow the oxiphosphate to harden more thoroughly, being protected from moisture for awhile.

Shellac varnish may often be used instead of ligatures in retaining the rubber-dam. A little vaselin smeared on the dam over the holes will greatly assist in carrying the dam to place, and between teeth that are close together.

Vaseline used on strips and disks seems to lessen the friction and pain, and rather assists the cutting qualities.

A small strip of rubber-dam, stretched between the fingers, can be used in connection with a very fine polishing strip, to give contour and smooth surface to a proximal amalgam filling.

I fail to see how some operators retain an arsenical dressing in some cavities with wax or cotton. I find it difficult in some situations even with cement, but think this should always be used.

I like Dr. Bonwill's method of arranging artificial teeth with the circle. I suppose all have seen the illustrations. I think the plate should always be higher over cuspid, to compensate for root of natural cuspid and give expression.

Will some one, well versed in medicine, kindly tell me whether there is danger of mercurial poisoning from absorption of mercury in mixing amalgam in the hand? [No.—ED. ITEMS.] I know some good operators who do this, and squeeze out the excess between the thumb and the forefinger.

We hardly see how a dentist can get along without a right-angle attachment. They are handy devices. For the last five years of our practice we used the short-shanked burs and points in our right-angle joint more than we did the ordinary drills and burs. Do not fail to have one of these adjuncts to your practice. You will find, after a little experience, that you can reach points in a cavity and do crooked work that it is impossible to do without them.

QUESTIONS OF HEALTH.

The popular notion that an athlete, because of his athleticism, is a healthy man, is a delusive one. Muscular development is not an affair of the constitution ; it is an accident. Strong limbs and a weak heart are not infrequently associates. Many a " strong man " dies prematurely of consumption. If health may be defined as a capacity for holding on to life, then in many cases the weaklings are the healthiest. If such a definition is accurate, women are healthier than men ; their average length of days is greater than ours. But it is doubtful if centenarians, merely because they are centenarians, are the healthiest. I knew a case of a woman, who recently died at the age of one hundred and five, who was slightly paralyzed, even as a child, and who was practically completely so for more than seventy years. Could such an one have ever been correctly described as healthy ? It is as hard to say what life is as to say what health is, and the way in which unhealthy folk are tenacious of life is not the least of the marvels.

The boy who spends his money for beer, wine, whiskey, or tobacco, saddles on himself an appetite which can never be fully gratified without most seriously endangering his life, and is quite sure, if he lives till he is fifty or sixty years of age, to spend a sum of money which would give him a comfortable home. Many a householder and farmer has slowly but surely spent his money for the above poisons till his property has had to be sold to pay his debts—a sad day for him and his family. Boys and young men, do you want to follow in the footsteps of such ? If you do not, keep away from saloons and let intoxicating drinks and tobacco alone. " Touch not, taste not, handle not." The boy or young man who commences spending his money for tobacco or intoxicating drinks, as a rule, handicaps himself for life, and poverty and sorrow very frequently result.

Americans are apt to think that education is more general in the United States than in any other country, but nearly 8 per cent of the white population, ten years of age and over, are illiterate, and of the total population nearly 14 per cent are illiterate. In Europe the most generally educated people are the Scandinavians,

of whom, according to Mulhall, only 3 per cent of the adult population are unable to write. Next to the Scandinavians are the Germans, with 4 per cent of illiterates; Switzerland stands next, with 5 per cent; Scotland is fourth, with 6 per cent, and England fifth with 9 per cent of her population unable to write. The rate of illiteracy is not caused by the foreign population, for the rate in Pennsylvania of 6.8 of all persons over ten years of age is exceeded in Rhode Island, is greatly exceeded in the Southern States, and is nearly as much less than England's as it is greater than Germany's rate of illiteracy.

OIL OF CASSIA AS A REFRACTIVE MEDIUM.—Oil of cassia has a higher refractive index than cedar oil, and Dr. H. G. Piffard finds it brings objects examined in it into sharper contrast. In a paper read before the New York Academy of Medicine, he stated that he had worked with a sample having a refractive index of 1.593. Bacilli examined in this oil exhibited an unrivaled brilliancy and sharpness of contour. The minuter details also, such as spores, flagella, etc., are shown with a distinctness impossible in cedar oil. The oil of cassia, like the oil of cloves, tends to abstract the color from bacilli stained with some of the anilin dyes, a disadvantage not shared by cedar oil, but it is stated that this does not take place with sufficient rapidity to interfere with the diagnostic examination.

DENTISTS CANNOT COMMIT AN ACCIDENT.—A novel "accident" insurance case was decided in court recently. E. L. La Bossiere held a \$3,000 policy of the American Employers' Liability Insurance Company. In March, 1893, he was in Toledo. One of his teeth commenced aching in a vicious way, and March 21st he had it drawn by a Toledo dentist. In the operation La Bossiere's jaw was broken, and he died March 31st of blood poisoning.

The heirs brought suit against the company for the amount of his insurance policy, the contention being that his death was caused by the accident in the dentist's chair. The court told the jury that tooth-pulling and the resultant evils are not accidents within the meaning and liability of insurance companies, and directed a verdict for the defendants.

CURRENT THOUGHTS.

CATHODE-PHOTOGRAPHY.

The European Experiments Confirmed at Yale.

Special Dispatch to the *Evening Post*.

Prof. A. W. Wright, who occupies the Chair of Experimental Physics at Yale University, and is in charge of the Sloan Physical Laboratory, has been for upward of twenty years occupied with the investigation of the phenomena of electrical discharges in vacuum tubes, and has made many experiments both in the construction of those tubes and in studying the electrical effects with them. His attention was attracted by the reports of the recent work of Prof. W. C. Roentgen, of Wurzburg, Germany, in photographing objects behind opaque bodies by the agency of the well-known cathode rays, which had already been brought into special prominence among physicists by the ingenious researches of Philip Lenard, of the University of Bonn.

Lenard made use of the fact, which had been previously announced by Hertz, that thin leaves of metal were rather freely traversed by the cathode rays and that aluminum was especially penetrated by them, much as glass is by light. As glass very largely intercepts the cathode rays, Lenard made a small opening in the glass wall of a vacuum tube which he covered with a thin sheet of aluminum, thus forming a kind of window through which the rays could pass with freedom, and thus be studied in the air outside of the tube. Lenard's observations were made chiefly by the aid of phosphorescent screens placed in the path of the rays, but he also made use of sensitive photographic plates. On these photographic plates he obtained impressions through various substances laid over them, as, for instance, thin plates of quartz and aluminum, and he even obtained these photographic impressions when the plate was enclosed in an opaque box.

Roentgen, whose recognized talent and eminence in physical studies give authority to any statement which comes from him, has, according to reports from Europe, developed the phenomena described above on so large and impressive a scale as to arouse the widest interest. This he has been able to do by the use of powerful apparatuses and a series of the most ingeniously devised experiments. Prof. Wright has now confirmed completely the results of Roentgen's experiments, startling as those results at first appeared.

Prof. Wright used in his experiments a high-vacuum tube, namely, a tube in which the exhaustion is carried to so high a point that the tension of the gas left in the tube is measured by a few millionths of ordinary atmospheric pressure—the so-called Crookes' tube—and connected to the poles of an induction coil in action. The discharge from the negative electrode of such a tube gives the cathode rays, which, it must be emphasized, are almost non-luminous. Although a considerable part of the energy of these rays is stopped by the glass of the tube itself, enough passes through, with the use of a powerful apparatus, to produce effects at a comparatively long distance. These rays operate very energetically on a sensitive photographic plate, and produce their effects even when a thick layer of wood or other opaque non-metallic substance is interposed. The sensitive plate may even be completely enclosed in a wooden box, as has been so strikingly shown by Roentgen in his experiments. The objects, the effects of which are to be investigated, may be laid on the top of the box in the path of the cathode rays.

Prof. Wright's experiments were made with a great variety of substances, and it was found that strong impressions were obtained on a photographic plate even when it was enclosed in an opaque wrapping of black paper and covered with a pine board half an inch thick.

It was evident at the outset that the order of transparency of different subjects for the light rays was very different from that which is found with the cathode rays. Thus pieces of glass were more opaque to these rays than some of the metals or than ebonit, which is perfectly opaque to luminous rays, but transmits the cathode rays with great freedom. Among the metals aluminum is especially distinguished, and in one of the experiments of Prof. Wright an aluminum metal left its impress on the plate so clearly as to show both the design and lettering. In this latter case the layer between the medal and the sensitive plate was absolutely opaque ebonit, which is the substance used by photographers to darken completely the plate-holder.

In other experiments which were made by Prof. Wright with pine board interposed, a closed paper box containing aluminum grain weights left a trace on the plate which appeared as though the box were almost transparent and the weights themselves somewhat translucent. An ordinary lead pencil lying near the box on the interposed board showed its graphite core by a darker trace in the middle of the fainter impress of the wood of the pencil.

Another paper box contained three small spheres embedded in cotton, one of platinum, one of brass, and one of aluminum. In this case also the box and the cotton appeared so nearly transparent as to leave but a slight impression on the plate. The brass and platinum spheres intercepted a large portion of the cathode rays, the aluminum sphere a much smaller proportion. A number of American coins—silver, copper and nickel—produced strong impressions, showing almost complete interception of the rays; but there were differences, the copper coins transmitting more than the nickel and the nickel more than the silver.

In an earlier experiment a somewhat thinner board of white-wood was used, the plate being wrapped in black paper as before. On this board was laid a pocket-book of dark Russia leather with several flaps of leather within, and containing seven cards, two of them thick. A number of small coins were slipped into the inside compartment of the book, which was then closed and laid on the board under the tube. On the plate, when developed, only a faint shading was left by the pocket-book, but the coins left a strong and definite picture, showing with surprising clearness their number and position in the book. A trace of Prof. Wright's hand, which rested on the board during this experiment, was also strongly depicted. The outlines of the hand were somewhat blurred, and in the palm faint traces of the passage of the rays between the bones could be detected, but there was little of the effect, reported by Prof. Roentgen, of the greater distinctness of the impression made by the bones.

It may be said with regard to the pictures produced on the sensitive plates by these experiments, that they have to the eye an appearance similar to those of shadows thrown by the object on a surface when the source of light is but a short distance away. If the object is at a short interval from the illuminated surface, the image is somewhat enlarged, also distorted if the rays fall obliquely, and the edges somewhat blurred or diffused. If the distance of the tube is increased or the interposed opaque layer is thinner, so that the object experimented on is brought quite near to the sensitive plate, then the outline of the picture is more sharp and clear and the proportions are more nearly normal. In Prof. Wright's first successful experiment, instead of photographic plate a piece of sensitive bromide paper was used, simply wrapped in stout black paper absolutely opaque, on which the objects were laid, consisting of a pair of scissors, a lead-pencil, and a quarter of a dollar. These objects left a strong impression, with remarkably clear outlines of their exact forms.

The reports of Prof. Roentgen's work state that the cathode rays do not suffer refraction, and that therefore no image is formed by the action of a lens through which they pass. Prof. Wright's experiments confirm this, and seem to indicate further that they are not susceptible to double refraction or to reflection. In this respect they are radically different from rays of light, as also from the rays produced by electric oscillations as described by Prof. Hertz. The real nature of these wonderfully mysterious rays forms a most thrilling subject of future investigation, both as to methods and scientific proofs. Prof. Wright, as the result of his experiments in photographing thus through opaque bodies, sees no obstacle to the wonderful precasts of Prof. Roentgen and even more amazing ulterior results.

Prof. Wright's successful experiments were made several days ago. To-day he exhibited equally remarkable results, delineating a very large variety of substances taken through the ebonit of a photographer's case.

ADVANTAGES OF PYROZONE.

Pyrozone, in the three per cent solution, is rapidly gaining favor with surgeons in hospitals, where the benefits of a non-poisonous solution of H_2O_2 can be readily shown by comparison with solutions containing barium and other injurious foreign substances.

Very great improvements have lately been made in the manner of putting up solutions of pyrozone, so that decomposition of the peroxid of hydrogen is now avoided.

Pyrozone three per cent solution may be ordered in the new amber glass-stoppered bottles, and it will keep for an indefinite period. The constantly increasing use of pyrozone is demonstrating that its use is closely in accord with the most recent germ theories of disease.

It is used with excellent effect at the toilet table, as well as in the surgery, and has the endorsement of those who give zymotic reasons for the spread of disease.

In private families where there is invalidism, with its unpleasant odors and its dangerous excretions, pyrozone three per cent solution should be liberally used as a deodorant, pus destroyer and general germicide. It is harmless to living tissue, and can be taken internally with benefit in many troubles affecting the stomach.

BALSAMO.

Dr. W. H. White, Silver City, N. M.

After another year of added experience in the use of balsamo in dental operations, I say that I could hardly do without it. The record is still unbroken. I have never heard of a single case of recurrence of apical irritation after I have filled the roots with this material.

I believe the real secret of success with this material is: That it is soft and permanently remains soft, and that it will adhere to a damp surface. A root canal is like a tube, and is liable to change of caliber from thermal or other causes. When filled with a hard substance and such changes occur there must form a crack between the filling and canal-wall, or within the substance of the filling, thus allowing septic invasion; but when such a canal is filled with balsamo, the substance of the filling gives without cracking when there is a change of caliber, and when you add its permanent antiseptic and local antiphlogistic qualities, and its entire compatibility with tissue of all kinds, there seems wanting nothing to be desired for these purposes. I have discarded the use of the barbed nerve-extractor in cases of recently destroyed pulps. I take out the bulbous portion with engine-burs, and clean the bulbous half of the root canal with the Brewer drill, purposely leaving the dead nerve undisturbed in the apical half. After three years' experience I have not known a single case to cause trouble; the absolute immunity from all pain, soreness, neuralgia and abscess is certainly remarkable in the light of my former experience in such cases. My usual practice is to fill roots and crowns permanently at the second sitting, or where I use local anesthetics, taking out the pulp, I fill permanently root and crown at first sitting.

I have a record of one hundred and thirty-eight abscesses cured during the past year. With these cases I have used nothing as a germicid except oil of cinnamon, and have filled all roots with the balsamo. In forty-eight of these cases the roots and, when amalgam was used, the crowns also, were permanently filled within thirty hours after treatment began. In seventy-one of these cases the roots were filled on the second or third day after treatment. Many of these latter might have been filled safely within twenty-four hours, but I either did not have time to attend to them or there was no necessity for haste. The only cases found that I did not feel safe in filling within forty-eight hours were

those where the canal was so small that I had great difficulty in getting the germicid into the apical space, and those where the apex was necrosed.

I found three abscesses during the year that I could not cure—they all occurred in the same mouth; they had fistule with apex necrosed, and a copious flow of thin, milk-white pus. I failed to cure a single abscess in this mouth by any method of treatment, even after amputating the necrosed pulp.

In none of the one hundred and thirty-eight cases treated and cured did I inject any medicament into the apical space, but allowed the cinnamon to reach that space by absorption. I made no attempt to remove the dead pulp from the apical third of the root canal. I dried the canal only so much as could be done with absorbent cotton. I used no escharotic to break up the pus sac. I found blind abscesses far more amenable to treatment than fistulus abscesses. It was immaterial to me whether the pus was discharged or not. Of course, where the pus discharged through the canal, I would allow all to escape that way that would, and when the abscess had made an opening through the process, I would lance the gum, but made no further attempt to get rid of the pus. The theory is that it is not the pus cells that hinder the healing process, nor is it the dead bodies of the microbes, but it is the ptomaines, the excretions of the microbes, that cause the trouble. Therefore, if you use a germicid it kills the microbes and stops the excretion of ptomaines; and let that germicid be one that does not poison human cells, but leaves them in healthy condition, so that they may perform their proper function; then the giant-cells, the scavengers of the body, will quickly devour the pus-cells and the dead bodies of the microbes, and the leucocytes, the builders of the body, will quickly repair the breach. Oil of cinnamon is too strong a drug to use full strength in the apical space. Leaving part of the dead nerve in the canal, so far from being a detriment, is a benefit, as it allows only minute quantities of the drug to pass into the apical space. Dentists have been taught so long that it is necessary to evacuate the pus and to break up the pus sac with escharotics, necessary to clean the canal thoroughly of dead pulp, and to dry the canal, etc., that it is difficult to make them believe that all these processes are not only useless, but detrimental. I have used the material long enough to observe that the dead roots of temporary teeth filled with balsamo seem to be absorbed the same as live roots are. I believe the giant-cells will absorb a dead root as rapidly as a live root if there be no microbes present to hinder them from performing their functions.

I have been particularly interested in watching the results of using balsamo with amalgam in filling teeth. In looking at the material one cannot realize its practical benefits. I have gradually grown into its use, till I now use it in all amalgam fillings. Balsamo is so attenuant that a very small quantity of it will completely permeate the amalgam and perfectly insulate the several particles of metal, so that such a filling is as poor a conductor of heat, cold and electricity as cement or gutta-percha. I now use it in all cases of nearly exposed pulp where capping of gutta-percha or of cement was formerly employed.

In recapitulating its good qualities I will say :

1st. It is more compatible with tooth-structure than any other filling material yet devised. When a tooth is decayed so that the pericementum is exposed, mix the amalgam with balsamo, and place it lightly against this tissue, and it will remain perfectly comfortable. Any material which can be thus used must be compatible with tooth-structure.

2d. I believe it hermetically seals a cavity, which cannot be said of any other filling material now in use, there being a strata of balsamo next to the tooth that is soft and remains soft.

3d. Fillings will require less undercutting than with amalgam alone ; in fact, they adhere to the walls of the cavity as firmly as cement.

4th. When balsamo is mixed with amalgam it causes the filling to be as poor a conductor of heat, cold, and electricity as a cement filling, and is impermeable to the fluids of the mouth.

5th. The tooth-edge does not crumble as it does with amalgam alone. I think this is due to its entire compatibility.

6th. The filling does not blacken the tooth as amalgam fillings do, balsamo keeping the filling from oxidizing. While it is thought these salts have a preserving effect, still they are not necessary when balsamo is used.

7th. It is especially useful in filling temporary teeth where it is necessary to insert fillings quickly, and often without thorough preparation of the cavity.

8th. Patients never complain of uneasiness or pain from thermal changes when sensitive teeth are filled with this material. In short, I believe this filling combines all the good qualities of amalgam, gutta-percha, and cement, and has a number of good qualities that none of these possesses.

When I wish to fill over-exposed pericementum, or where the pulp is nearly exposed, I mix balsamo with part of the amalgam and press it down lightly with spunk folded tightly in the

pliers, finishing the filling with pure amalgam. For ordinary cavities I cover the cavity first with balsamo and work the amalgam into this; this forms a pasty mass; when the cavity is half full I wipe off the surplus balsamo with spunk, firmly rubbing it against the walls of the cavity, then complete the filling with purer amalgam. When balsamo is mixed with amalgam it at first forms an unsightly mass, resembling blue mass in appearance, and shows dark through thin enamel, but after it has been in a tooth a few weeks or months it loses this dark color and the fillings look far better than if amalgam alone were used. Spunk moistened with alcohol used on the amalgam makes a clean, hard surface to these fillings. The reason I think balsamo preferable to the various alcoholic or chloroform solutions of the gums now in use for lining cavities, is that these solutions become hard on exposure to air and moisture. When lining a cavity, if the caliber of the cavity changes, these linings crack, and thus allow the invasion of septic matter; balsamo will permanently retain its present consistency and cannot crack—it is also more compatible with the tooth than these gum solutions. Among other things for which I find balsamo useful is:

1st. To relieve pain in the alveola after tooth-extraction, especially where no firm blood clot is formed. A plug of cotton saturated with balsamo put into the socket will keep it free from pain till thrown off by granulation.

2d. When an exposed pulp is painful and congested, the pain is relieved and the circulation is restored to its normal condition by an application of balsamo. The relief from pain is caused by antiphlogistic properties and not by anesthetic properties. I have thus often relieved the pain caused by arsenical application.

Till lately I thought balsamo a vegetable product, but I have discovered it to be an animal product; an insect uses this material to rear its young in the same way as bees use beeswax.

International.

Dr. O. E. Houghton says: I have used electrozone in over fifty cases, during the past six weeks, on wounded surfaces, putrescent pulp canals, alveolar abscesses, etc. It is certainly a deodorent and disinfectant, and unquestionably an excellent germicide and perfectly safe. I have come to the point where I place more confidence in it than on all other disinfectants.

PRACTICAL LABORATORY POINTS.

J. G. Templeton, D.D.S., Pittsburg, Pa.

I am inclined to think that any testimony or descriptions the writer may give of practical laboratory points will appear so blunted that they can be sharpened by any ordinary dentist.

In the dental laboratory it is very important to give particular attention to little things, which, of themselves, seem to be minor. Yet, if omitted, these little things often show much defect in the final results. If called on to give advice to all dentists, and particularly to the younger men in the profession, it would be to get all the little practical points possible, and store them on a shelf in memory that they may be ready for use when needed, like a good friend in time of perplexity and trouble.

A slip noose can be put on the lower front teeth with one hand while the rubber-dam is held down with the other. Get your slip knots ready first, draw them tight, and they will hold as long as wanted.

To solder a cap on a gold tube intended for an artificial crown, lay the cap on about a tablespoonful of finely-cut asbestos, put the tube in place on the cap, drop in the solder and a little powdered borax, then blow a yellow flame on the asbestos all around the tube till the solder flows. There will be no danger of melting the gold.

In vulcanite work the best results may be obtained by making models one-fourth marble dust and three-fourths plaster; also the same in flasking the case.

To keep rubber from running between the teeth and joints in vulcanizing, after the teeth are set in the first half of the flask plaster, trimmed and varnished, pour water on all the teeth and joints, then mix a small quantity of pure plaster, have it rather thin, and with mixing spatula cover labial and buccal surfaces, also the joints; take up the piece quickly and bring it near the mouth and blow rather sharply against the thin plaster all around, which will force it into all spaces between the teeth or blocks. After this finish, flasking in the usual way, and, if possible, it is well to allow the case to remain over night in the flask before packing.

To keep plaster from sticking to palatine surface of plate just before beginning to pack the case, coat the model with a thick lather of good soap. In finishing the plate, always trim the rim low over the bicuspids, leaving it high as can be worn over the

cuspid, and the same over and back of the second molars; do not file rim to a knife-like edge, slightly bevel inside of rim at the top extending down about three-sixteenths of an inch.

To make platina and gold plate, melt with blowpipe pure gold on a piece of platina and roll to the desired thickness, the result will be as good as any you can buy, and you will have saved at least thirty cents per pennyweight.

United States gold coin is $21\frac{6}{10}$ k. fine. Instead of buying 22k. plate from the supply houses for crown- and bridge-work, get United States gold coin (the older coins not alloyed with copper are best), and you will save \$1.40 on each \$5 worth. A \$5 gold piece weighs five pennyweights and ten grains.

Much can be saved by the dentist making his own solders. Good formulas are to be found in both Harris and Richardson; also elsewhere. We have for several years used a formula obtained from Dr. Melotte, of Ithaca, N. Y., which is as follows:

Take a United States \$5 gold piece, 20 grains coin silver, 10 grains pure copper, 6 grains English toilet pins; melt the silver and copper together first, after melting this and the gold together, add the pins, flow into an ingot and roll, cut it into small pieces and melt again if it should not roll well first time, this will give a solder a little more than 19k. fine, and flows nicely on coin gold, being the same color.

This we call No. 1. Now take of No. 1:

No. 1	89 grs.
Coin silver.....	7 grs.
Pure copper	4 grs.

Melt together and roll, and we have a second grade which we call No. 2, and which will flow on No. 1.

To make a still lower grade, take:

Pure gold	6 dwt,
Copper	2 dwt.
Fine silver	1 dwt

And you will have a 16k. solder. In my practice only Nos. 1 and 2 are used.

Dental Review.

In treating dead teeth some dentists lay great stress on the necessity of removing every vestige of the pulp. I suppose I must consider it heterodoxy, but I have often left in a portion of the pulp, depending on its harmlessness, by converting it into a condensed thread of leather by tannin moistened with creasote and oil of cinnamon.

THE MICROSCOPE AND MICROBES.

Dr. W. C. Barrett, Buffalo.

The discovery of the microscope opens another world, the microcosm, and as the number of stars revealed by the telescope exceeds the number visible to the unaided eye, so the number of organisms brought into our field of vision by the microscope infinitely exceed those within the scope of our natural eyes. The limit of the microscope is the limit of illumination. We could get instruments to show much smaller organisms than it is possible to see now, if we could illuminate them sufficiently.

By the aid of the microscope the whole field of knowledge has, within the past few years, been enormously increased. The world unseen then, now is known to infinitely transcend that which is seen, and organisms too small for human vision, whose existence then was unsuspected, are known to play an infinitely more important part in the processes of nature than do those which are visible, and are more curious in their construction and their function. An important function which they are known to fulfil in the disruption of organized matter, the breaking down of the organism, and the return of its materials to their original elements. Then, too, it has been proven that they are factors in disease. Those terrible pestilences which periodically devastated portions of the earth are now known to have been caused by micro-organisms. The terrible cholera now, by cause of this increased knowledge, is as controllable and no more frightful than fever and ague. Just as soon as the disease is understood, it can be controlled. The result of this better knowledge of disease and its causes is that, within a few years, the average length of human life has been increased about five years, and more and more diseases are coming under control. The bacilli of tuberculosis has been recognized, and now physicians know that consumption is communicated from one person to another, and not inherited. The liability to such a disease may be inherited in the shape of a weakened system, but the bacilli cannot be inherited. With this knowledge will come the power to control this terrible disease and give us reason to expect that it can and will be stamped out. Typhoid fever was formerly considered almost necessarily fatal and unavoidable; now we know its cause, and it is becoming more rare and less fatal every year.

To give an idea of the size of some of the microorganisms, they are as much smaller than a man as a man would be smaller

than Mont Blanc, yet they multiply so rapidly that it has been computed that the product of one single organism could in four days, if all things were favorable, increase so as to fill all the seas of the globe. An erroneous idea has existed as to the nature of these organisms. It was thought that they were animals. This is not so; they are as much vegetable as a potato. They grow essentially in the same manner, though they belong to a different order.

Cosmos.

PORCELAIN INLAYS.

Dr. C. J. Essig.

The Downie furnace is a little bit of a thing, used with ordinary gas, and it takes only a few minutes to burn a tooth of this kind, and a very short time to cool it. Quite a number of teeth can be done without a great expenditure of time. I really know of nothing more valuable than it is for preparing special forms and sizes of teeth, and for porcelain inlays.

By passing the teeth over a corundum wheel, then getting the right color from one of the Downie preparations, then burning it, the teeth has all the appearance of teeth that have been especially made. I think that the body furnished with the Downie furnace will adhere perfectly and form a very good union between the enamel of the porcelain tooth and itself.

Dr. Guilford. I have no hesitation in expressing the belief that porcelain work is the coming work. I recognize this just as I long ago recognized that bridge-work had great possibilities, yet at the same time it has its imperfections and limitations.

I have had no experience in baking porcelain. I have had very much experience, however, with this so-called glass filling introduced in place of porcelain filling. Part of the process in each case is the same, and a few points in regard to the procedure may not be out of place.

Having prepared a cavity of this kind with parallel or less than parallel walls, a matrix is made of thin platinum or (preferably) a combination of platinum and gold, No. 60, as made by Williams, of New York. Taking a piece of sufficient size to more than cover the cavity, we press it into place by means of a lead-pencil with a rubber point or end, having first given it the same shape as the pencil end that you write with. In that way the foil can be pressed around the cavity nicely and spread over the edges.

Another way is to use cotton instead of the rubber point; but a better plan is to place your foil over the cavity, make a little indentation in it, then take a piece of beeswax or hard wax, and by slightly warming that and pressing down into the cavity it spreads the foil in all directions and fits the cavity perfectly without wrinkles or folds anywhere. When that is removed, it is simply held over a lamp and the wax melted or burned out.

I think this is the coming work because it has so many possibilities. The objection to a porcelain filling is that it is somewhat difficult to build up the filling in one of these matrices so that when the foil is removed it can be placed in the cavity and not be too high or too low. In making a porcelain filling, you have to be skilful enough to get it just right to answer the purpose, and that is difficult; but the chief objection is the perishability of the material with which it is set.

A couple of years ago I had a patient in whose mouth it was desired to have a Logan crown placed. The direction of the root was such that I could not get one that would stand properly. I selected one of proper shade and nearest size, ground off all of the enamel on the buccal surface, and gave the crown the desired form. This left the porous body of the crown exposed, but it was then nicely covered with enamel and baked in the furnace, and came out very satisfactorily. The Downie furnace is probably the smallest gas-furnace that we have, but the Custer electric oven is simpler and more desirable where the electric current can be had. The electric oven is scarcely larger than an ordinary vulcanizing flask, and it is heated by simply turning on a button as you would start an electric light.

Dr. C. V. Kratzer. I have been doing some work in the line of porcelain inlays in the last two years, very much in the manner described by Dr. Christensen. I find that in addition to the method given by Dr. Christensen, the method Dr. Guilford mentioned, that of using the rubber end of the pencil, sharpening it down to a point, is a good one, but I use the writing end without being sharpened. It is of great aid in pressing the platinum foil to the edges of the cavity; but I do not confine myself to these two. I use a steel burnisher also. I think I can get a sharper edge by finishing up with this. The foil can be readily burnished down, and will admit of considerable burnishing before it becomes hard enough to leave the edges of the cavity, by its springiness.

This work, I think, is especially useful in incisors and cuspids, where a large gold filling would be unsightly, and for that reason objectionable. I have used it in such, and while at first I

was skeptical as to the durability of the cement, I found later that my skepticism was entirely unfounded. Of those put in in that way two years ago, I have seen but a few recently, and there is no perceptible wearing away of the cement. The work is very beautiful when you approach the shade of the natural tooth closely and get a good adaptation; from some little distance it can hardly be noticed at all.

In repairing porcelain teeth, changing the shape, form, and color of the teeth, etc., I find it very useful in my practice. The first use I made of it was in the alteration of a Logan crown. I could find none in my stock to fit. The crowns I had were all too small to cover the root. I remedied the difficulty by enlarging the one which came nearest to fitting so as to proximate the contour of the root, thus making a perfect fit by slight subsequent grinding.

I have also repaired broken gum-section blocks by slightly beveling the broken edges and filling the grooves with body; by very careful manipulation the pieces can be thoroughly reunited so that when replaced on the set the joints will be scarcely perceptible, if at all. I have also reattached pins to old blocks by this means.

THE STRUGGLE FOR PROFESSIONAL LIFE.

Dr. Louis Jack, Philadelphia.

A SYNOPSIS.

The practice of dentistry is attended with large and exacting responsibilities, requiring the mastery of the principles and sciences related to the practice of medicine and surgery, the special knowledge of dental science, and the skill in technique and mechanics demanded to give it practical efficiency. Those entering into the study of dentistry should appreciate their relations to the community. The student must be faithful and diligent, devoting his time to study and research, and keeping personal pleasure in the background, or as a means of necessary recreation only. This severe devotion should commence with the first period of student life, that each day's instruction may be prepared for by what has gone before. Doubtless the deficiencies of many in practice can be traced to waste of time and inattention while at school. The consequences of this carelessness are far-reaching. The battle-sword which every one, sooner or later, must wield against the "dragon Fate" has been blunted. This fate is that limited capacity result-

ing from the inheritance of ordinary mental qualities, overlaid by evils of indolence and self-indulgence, with a possible unfavorable environment. The brightest and most useful men of all ages have been those who have taken up this gage of battle by faithfully devoting themselves to master their mental environment.

It is not the necessity for exertion to satisfy the demands of the physical nature to which this refers, but to that higher form of struggle growing out of competition with other minds, and to that still higher, the impulse to reach the highest state of professional life. Adjustment to environment is what is really meant by "the struggle for life." This struggle for professional life is involved in the demands on the immature student; it continues through early manhood, and must be kept up till the end. It is this constant effort which maintains the life of this and of all professions. Those who do not engage in it inevitably become inert and must drop out. The "survival of the fittest," as we see it in nature, is not the harsh and cruel necessity it seems, but is the path along which the highest development has been reached, and the condition on which advancement is dependent. It is, therefore, a beneficence, and must be the same in professional life. This struggle is on all of us, for whatever man needs for the building up of his powers involves it. The great purpose of life is the development of character, which is the toilsome rearing of truth on truth, and cementing them into the mental constitution.

The motives which enter into the development of professional standing are, the spirit of usefulness to mankind, loyalty to one's profession and personal benefit. The first inclines toward the acquirement of knowledge, and the growth of powers which increase the value of service to others, and where the motive is genuine there is no stopping place. The second motive force, loyalty to one's profession, may fittingly be compared to patriotism, and each devotee owes to his profession the service of his mind, that it may grow in strength and honor, and as well the duty to use this power for good to protect it from the injurious influences which menace its advancement. The influence of these two motives on the individual is always potent; they react on the personal benefit, and he who is improved by these higher impulses casts about him a wide-spread influence which is constantly securing a legitimate personal benefit. If that which should be secondary—the personal advantage—is made the primary object, professional spirit is retarded, the individual is narrowed, his views become warped, he loses the sense of honor, and becomes like the sponge—growing only to absorb.

Cosmos.

DENTISTRY IN JAPAN.

Japan is regarded as one of the most, if not the most, progressive nations of the East. While this is true of almost every thing else, it has not generally been known that dentistry has received much attention; but they have not been idle in respect to dentistry, as is shown by the fact that they have two dental journals, a large dental society and a dental college. *The Shikagakukai Journal* is the organ of the dental society, and publishes the proceedings of that body in full. This journal was established about six years ago. The form is the same size of the *Register*, and each number contains about one hundred pages.

The other *The Shikwa-igaku-sodan*, a medical journal devoted to the investigation of dental science.

The first number of this was issued October, 1895. It is the organ of, and is published by, the Takayama Dental College in Tokio. It contains one hundred and twenty pages, and is published quarterly.

The dental society was organized in November, 1890. The objects of the society is the improvement of the profession, and the exchange of dental knowledge.

The meetings are held twice a month, when the members deliver speeches, open debate or answer questions on professional matters; and all these transactions are published in the monthly journal, which is distributed to the members. The total number of members is five hundred and twenty. They are composed of the following: 1st. Those who have passed the dental surgery public examination, which is exacted twice a year by the government; of this class of members there are two hundred and eighty-one. 2d. The graduates of foreign dental colleges who are now actually engaged in the practice of the profession. 3d. Those who have certificates for the profession given from the government on account of their practice in the Japanese system of dentistry. 4th. The students of the art.

The college was founded in 1890. It aims to promote the cause of dentistry, by treating every thing in regard to it, practical as well as theoretical.

It is remarkable that all this should have been done within the last six years. All the agencies for development and growth have been put into active operation within that time. Our dental associations must bestir themselves or be outstripped by our Japanese friends.

LOCAL ANESTHESIA.

Dr. Schleich gives the following three formulas :

(NO. 1.) STRONG SOLUTION.

For operations on inflamed or hyper-esthetic areas, as carbuncles, abscesses, where the pain of infiltration would be very great :

R.—Muriate of cocaine.....	gr. 3
Muriate of morphin	gr. 1-3
Chlorid of sodium.....	gr. 3
Distilled water enough to make.....	oz. 3

Sterilize by adding 3 drops of a 5 per cent solution of carbolic acid.

(NO. 2.) STANDARD SOLUTION.

For surgical operations in general, and especially deep ones :

R.—Muriate of cocaine.....	gr. 1½
Muriate of morphin	gr. 1-3
Chlorid of sodium.....	gr. 3
Distilled water enough to make.....	oz. 3

Sterilize by adding 3 drops of a 5 per cent solution of carbolic acid.

(NO. 3.) WEAK SOLUTION.

For operations on superficial areas not rendered hyper-sensitive by inflammation, as in the removal of a nevus, etc. :

R.—Muriate of cocaine.....	gr. 1-6
Muriate of morphin	gr. 1-12
Chlorid of sodium.....	gr. 3
Distilled water enough to make.....	oz. 3

Sterilize by adding 3 drops of a 5 per cent solution of carbolic acid.

The cocaine renders the tissues anesthetic at once, though that is evanescent, yet the morphin serves to hold the effect, and the edema and pressure caused by the large injection make the anesthesia complete for about twenty to thirty minutes.

It is necessary to have a large hypodermic syringe for this purpose. Even the pain of the initial puncture of the large needle may be prevented by previously injecting a few drops of the ordinary 4 per cent solution with a small syringe. As cold helps to produce and prolong the anesthesia, it is better that the solution should be made ice cold, if convenient. Dr. Bransford Lewis, of St. Louis, in an article in the *Medical Standard*, giving his experience in the use of this method, says :

Every tissue of the body, without exception (skin, muscle, gland, mucous membrane, nerves, etc.), becomes insensible to pain when infiltrated in the manner described. This obtains for bone and the hard structures as well as the soft. Bone is reached either through infiltrating its periosteum or by injecting into the medulla. Nerve trunks are anesthetized separately, first by applying 5 per cent carbolic acid solution and then through this inserting the needle and fluid.

Only the infiltrated, artificially edematous tissue is anesthetic, the tissues just outside retain normal acuteness or sensibility. Consequently, in the course of an operation, with absorption of the infiltrated fluid, it is necessary to renew the injections or extend their area coincidently with the operative field.

With the proper fluid anesthesia ensues immediately on its being introduced into the tissues, and lapse of time is not requisite for developing insensibility. This again is in marked contrast to the effect of the older methods of producing anesthesia. Its advantage is great.

Anemia resulting from the method, there will be less bleeding (oozing) than under ordinary circumstances. Distortion of the tissue from the infiltrated fluid does not cause any especially increased difficulty in securing and tying or twisting bleeding vessels. Nevertheless, in operating in deeper structures, care must be taken to avoid risk of piercing blood-vessels, nerves, etc.

This is the method which we mentioned some time ago, stating that Professor Parvin had allowed a demonstration of it to be made on himself before the Philadelphia County Medical Society, allowing a deep cut to be made in his arm and sewed up under this infiltration method of producing local anesthesia.

It appears that we have witnessed another of those great discoveries which mark the rapid progress of medical and surgical science. In the early years of this century patients had to be held by several assistants while the operation was performed, while their agonizing screams gave additional distress to all around. Now they can read a newspaper while it is going on, or watch it with the interest which they may naturally be supposed to take in it.

Med. World.

SPURIOUS HISTORY.

The readers of journals must have been impressed with the fact that very little attention is ordinarily paid to historical verification of statements made. So serious has this careless handling of subjects become that it is as much of an evil as the plagiarism which we have had occasion to allude to in a former number, and which has been a blot on the literary work of the profession for years.

Writers seem to forget that a statement involving an historical fact should never be made till all possible means of verifying its accuracy have been exhausted. The responsibility is a very great one. The difficulties surrounding this effort are many and not easily overcome, for it means a research into the very origin of things pertaining to dentistry, and a thorough acquaintance with its literature and that of collateral subjects not possessed by the many, and, probably, in its entirety not by any one.

It not infrequently happens that writers will quote the last article read as authority without the slightest effort to discover its truthfulness, when, if the facts were known, it would be made clear that the supposed original writer had thoughtlessly or criminally assumed that his statement ought to have been correct, and affirmed it accordingly. The next writer, feeling the obligation to quote, refers to this or copies without credit, and thus the false statement goes ringing down the years till a later generation accepts it as a fact.

One of the most notable examples of this in recent years has been seen in the various papers and discussions on pyorrhea alveolaris. The attempts made to give correct history on this subject would be amusing were it not so serious. It would be difficult to give the countless blunders made in the history of this subject, errors which it will require years to rectify. We have tried many times to enforce the truth of history in regard to this, that we are indebted to the older, as well as the modern, French writers for the first and most thorough descriptions of this pathological condition. It was with more than ordinary satisfaction that we welcomed in our last number Dr. C. N. Peirce's timely work in his historical *r  sum  * of the labor performed by the French dentists on this subject, and it is to be hoped that this paper will settle for all time the historical side of the question, and relegate the former crudities of statement to oblivion.

This, however, is only typical of a whole series of errors ranging from the absolutely false to the supposed discovery of new things and new methods already hoary with age.

Perhaps one of the worst features of this mutilation of history is the attempt, frequently made, to belittle the work of the past. If some writers could be believed, there was no such thing as a good filling made fifty years ago ; that the practitioners of that period had no knowledge of mechanical dentistry or methods of treatment ; in fact, in the light of present superior knowledge, and not worthy the slightest recognition. Indeed, if these writers are to be believed, the work of the fathers was but a crude basis for the more perfect superstructure of which they form a part in the present. The men of the middle half of the nineteenth century are fast passing away, and soon there will be none left to bear personal witness to the truth of the assertion, which we unhesitatingly make, that the mechanical and operative work was, at that period, as effective as at the present ; and the mechanical work of the past decade can claim no superiority over that of fifty years ago ; indeed, it is doubtful whether it can compare with it in character and dura-

bility. It is to be questioned whether any of the younger generation of workers have ever seen such exquisite pieces of plate work as were turned out by Reynolds, originally of Geneva, N. Y. Such a thing as his double-backed gold plates are unknown, as far as we are aware, at the present time.

It was, therefore, with something of a shock that we read in the September number of the *Dental Review* the following paragraph, part of the discussion on a question on "Operative Dentistry:"

"There is no gentleman present this evening who has entered into anything like a retrospect of the injury that was done to the manipulative ability of the dentist during the period from 1850 to 1880 by the introduction of vulcanite and the introduction of nitrous oxid gas for the extraction of teeth. I began the study of dentistry in 1867, and my preceptors began the study of it in 1855, and neither of them could make a gold plate, because they had not been taught to do it. There was scarcely any instruction in any of the dental colleges between 1851 and 1852 and 1865, with reference to the manufacture and fabrication of metal plates, and the demonstrator himself, as a rule, was not capable of doing it. Consequently, the whole body of the dental profession nearly were unable to do metal work. The ease with which teeth were extracted through the administration of nitrous oxid, and the ease with which artificial teeth were inserted, decreased the value of the services of dentists all over the country. If you went into little towns at that time you would rarely find a man who could put in gold fillings. He did not dare to do it, because cement fillings were being inserted for fifty cents a piece."—Harlan (italics ours).

It seems incredible that any one should have made such statements, and particularly one occupying the position of the speaker. We should have been inclined to believe that it was a reportorial error had the paragraph not had editorial supervision.

We would beg leave to call the speaker's attention to the fact that up to 1850, and for sometime thereafter, nothing but gold and silver were used as bases for artificial teeth in this country. Ivory and bone were used in Europe, as well as the metals. The "molded" or poured tin base was made by Hudson, of Philadelphia, about 1820; but it was not used, to any extent, till Dr. George E. Hawes, in 1850, revived the process, and even then it was not generally adopted. It is in the last degree absurd to suppose that men who had nothing else to depend on but gold and silver should not have become skilled in its use. It will be news to those now living who practiced in the period alluded to, to be told that "the ease with which artificial teeth were inserted

decreased the value" of their services ; and it is still more singular that the extraction should have been accomplished "through the administration of nitrous oxid," inasmuch as this agent was not brought into general dental practice, as an anesthetic, till introduced by G. Q. Colton, in 1863, though originally applied by Wells in 1844.

It was not till 1855 that a patent was taken out in England, by Goodyear, for making a dental plate of hard rubber, and in this country by Cummings in 1855 ; but its use was by no means general, even as late as 1860. The first denture inserted by the writer was in 1858. The influence of vulcanite was, therefore, not marked in the decade between 1850 and 1860.

It is sad to think of what little value the teachings of Maynard, Harris, Townsend, Arthur, Westcott, Dwinelle, Rich, and a host of others could have been, that you could "rarely find" in the "little towns a man who could put in gold fillings." It was in one of the little towns in 1848 that the writer met a man who could place in gold equal to a Varney or a Webb. The reason given that the dentist "did not dare to do it because cement fillings were being inserted for fifty cents," seems rather out of place, in view of the fact that the first cement introduced, of any value, was the oxichlorid of zinc, the invention of M. Sorel, in 1856, for stucco work, but did not come into dental use for several years thereafter.

The dentist of these earlier decades was forced to make his work with a reasonable degree of thoroughness, and all dentists worthy the name were instructed in the manipulations in private offices and in colleges. To say that nothing of this kind was taught in the latter is a libel on these institutions. That this may not have been done with the care with which it is attempted to-day is possible, for the very excellent reason that students were all, with few exceptions, familiar with the work before entering the schools, and not, as now, taken without previous preparation.

We do not know the college from whence the preceptors of the speaker received their diplomas. They certainly were not of the kind familiar to the writer, if the demonstrators were unable to make a metal plate. Such a serious lack of knowledge would have ended in an early dismissal from the service.

The object of this article is not to criticise the historical failings of individuals, but rather to use these as an example to impress the fact generally that accuracy of statement was never more needed in speaking and writing than to-day in dentistry. It must be remembered that this profession is yet in its youth, and it is

vitally important that the details of experience be correctly gathered as we advance to a broader and more exact knowledge.

International.

CUSP ANGLES.

I have observed more failures (recurrences) at cusp angles than at any other point.

This is caused largely by the former practice of leaving these angles intact, with the view of giving some support to the filling, which I believe to be a fallacy. When but little dentine is left it is entirely inadequate to sustain the easily cleaved enamel under the wear and tear of mastication.

Anchorage gives better access to the cavity margins, and all parts of the cavity likewise, than the older forms.

Outward bevel all around the cavity margin (not too great) and the cavity is ready for the filling.

We go to our meetings and we talk and talk about how to prepare cavities and introduce fillings to make them last. Now what more is there to it than the putting of all the material you can in a good, clean, properly prepared hole?

However simple the general principles may seem, experience teaches there is a wide difference as to how the hole is cleaned and the material is put in—whether the results are to be permanent or temporary, comfortable or painful—whether put in by the master or by the apprentice, the accomplished operator or the bungler.

The cervical margin! Place your filling material evenly and firmly on all margins and surfaces alike, maintain as uniform density as possible through the whole mass of the filling. Restore the lost form of the tooth caused by decay and excavation. The cervical margin should now be able to take care of itself.

Amalgam is to take rank, on its merits, as a permanent filling material, both for rich and poor; for resisting decay; for easier form-building, and for its adaptability to the cervical margin.

Review.

To CLEAN AND REMOVE STAINS FROM TEETH.—Instead of using water with your pumice and iodin, or sulfuric acid, mix with 3 per cent aqueous solution of pyrozone, and you will find it more effective and less deleterious to the teeth.

H. L. Harlan.

DISINFECTANTS.

The diluting of disinfectants with alcohol, glycerin and oil makes them ineffectual. Dr. Lenti, of the Hygienic Institute of Naples, has found that corrosive sublimate dissolved in alcohol has proved useless, even in 1-250 solution on spores, which were placed in solution for forty-eight hours, their virulence was only weakened. By adding 10 per cent water to the alcohol the germs were destroyed in a 1-1000 solution. A 2 per cent solution of corrosive sublimate in pure glycerin was useless even after subjecting the spore to it for four days. By adding 40 per cent water they were destroyed in a solution of 2-1000 in twenty-four hours. A 10 per cent solution of carbolic acid in alcohol is useless, and remains so even up to 50 per cent. By adding 80 per cent water the germs were destroyed in forty-eight hours. A 10 per cent solution of carbolic acid in glycerin proved ineffectual even after seventy-two hours; 10 per cent water added did not change it, but after 80 per cent water was added it destroyed the germs in forty-eight hours. A 20 per cent solution of carbolic acid in oil, and a 10 per cent solution of lysol in oil, are both useless.

Zahntechnische Reform.

FILLING PULPLESS TEETH WITH FISTULOUS OPENING.—In the May number of the ITEMS OF INTEREST, Dr. C. N. Johnson, of Chicago, tells how he does this operation. The busy practitioner may not have time to resort to this proceeding, as described by Dr. Johnson. Now let me tell you how to do the operation, and do it quickly.

After getting a direct opening into the pulp chamber, and thoroughly washing out its contents with warm water from a syringe, apply the rubber-dam, and dry the pulp chamber with cotton and hot air, then with Gates-Glidden drills of different sizes enlarge the canals to the apex; now twist a few shreds of cotton around a Donaldson broach, and saturating in pure carbolic acid and iodoform, use as a piston till the medicament appears at the fistulous opening, and do not cease till it does appear.

Now your tooth is ready to fill; do not wait a day or a week, but go right ahead and fill solidly to the apex. I use shreds of cotton saturated with chloro-percha, and a touch of iodoform, and have yet to see the first case of this kind come back to me for treatment in a practice of fifteen years.

Dr. Angus Cameron, in Dominion Dental Journal.

REPAIRING BROKEN DOWN TEETH.

Dr. D. Murlless, Holyoke, Mass.

Now, if we consider an incisor with a third, a half, or even more decayed and broken down from the proximal and cutting edge, taking away a large corner of the tooth, and in many cases containing a live pulp, and when we reflect on the troublesome consequences of death of the pulp, or even pulp irritation, which is very likely to follow filling, we see that it is imperatively demanded that the effort at pulp-conservation be made. Such a tooth as I have described can be filled and restored to its original size and shape by first filling with some plastic, and then putting on a gold cap or crown, with an opening in its face of such shape and size as will just cover the margin of the cavity, having but very little more gold in view than would be seen if the tooth had simply been filled.

There are many advantages in this method, as teeth can be saved that it would be nearly impossible to preserve by other treatments; for example, many times we find the molars of the lower set lost, and persons in such a condition in using their teeth bring the lower incisors against the lingual side of the uppers. Where they have been thus used for some time the lower teeth will be worn on the cutting edge and shortened, and the lingual surface of the uppers will be worn by abrasion, so much so that the under side of the uppers will often be worn away, forming a shoulder at the neck of the tooth, and occasionally the labial surface will be worn thin. In such cases there is no way to retain a filling, but the tooth can be backed up with cement, and a cap, such as I have described, be telescoped over it. By this means the cutting edge is thoroughly protected, the whole tooth bound and held firmly together, and we may say it is as strong and serviceable as ever, and needs no more care than if it were perfectly sound. I had successfully used this method in my own mouth some time before I saw it spoken of anywhere.

Dental Digest.

QUACKERY DEFINED.—Quackery is medical practice commercialized, and therefore prostituted. It thrives because the victims are in the majority, and are easily reached by lying advertisements. “What is the proportion of sensible people in this crowd?” asked a patent medicine man of a physician. “About one in ten,” was the answer. “I take the nine and leave the one to you,” said the quack. This represents the majority which help to make the

quack rich. The nostrums cost almost nothing ; but the capital is used in advertising, in making pictures of the idiots and feeble-minded who imagine themselves cured ; in placarding fences ; in defacing scenery ; in publishing manufactured certificates ; in ridiculing scientific medicine ; in alarming the credulous ; in claiming false discoveries ; and in vaunting impossible results. But these are the men who make the money. Medicine to them is the nickel-in-the-slot machine. The diagnosis is ready-made to suit every need, and even otherwise sensible people are being educated to quackery and to the belief that every man can be his own doctor and not have a fool for a patient.

Dr. George F. Shrady, in Forum.

LIQUID AIR.

Prof. Dewar has exhibited at the Royal Institution the working of a new apparatus for the production of liquid air with a degree of ease not hitherto attainable. Around a cylindrical vacuum-jacketed vessel Professor Dewar closely coils a metallic tube. This is inserted into a second vacuum-jacketed vessel, the result being that the metal tube is protected from external heat by a vacuum both inside and outside the coil. The inner end of the tube has a pinhole orifice which acts as a stopcock, and the outer end is connected to a bottle of condensed air at a pressure of, say, 200 atmospheres. On opening the stopcock of the air reservoir, the condensed air passing through the coil to the bottom of the outer vacuum vessel is enormously cooled by expansion on passing the pinhole. It has no mode of escape, save by forcing its way upward between the metallic coil and the glass walls which surround it outside and in. By its passage the coil is powerfully cooled, and the condensed air passing through it reaches the nozzle at a lower temperature than before. After this process has been carried on for a few minutes, liquid air makes its appearance at the nozzle and collects in the outer vacuum vessel, where, in a few minutes more, quantities of 70 or 80 cc. can be obtained with ease. The process is facilitated by cooling the condensed air on its way to the coil, as by passing the tube through solid carbonic acid. With this refinement liquid air appears in three or four minutes, and collects with great rapidity. The new apparatus does not appreciably reduce the heavy expense incident to experiments at low temperatures.

Dental Science.

OUR NERVES.

Good health, mental, spiritual and physical, is well worth working for; it throws off malaria, if we may so term it, of moodiness, and lifts us into the sunshine of life. Good health, is, perhaps, more easily attained than many people suppose. We have no doubt that the majority of our readers have experienced occasions when the moods were all awry and out of sorts; at these times we are apt to imagine that the whole world is persecuting us, and that we are, above all our fellows, the afflicted objects of persecution, and are singled out for martyrdom. Without any insuperable difficulty there are occasions when we can throw off this moodiness by letting the nerves have their own way. Brooding over real or imaginary sorrows and miseries must have the effect of making the best of us moody and wretched. Unfortunately, we cannot all be blessed with the Mark Tapley temperament, but nursing our griefs can do no earthly good; our lives only become a burden to ourselves, and we bore our friends to the last degree. Nothing in Nature is more marvelous than the network of nerves constituting what we sometimes call our nervous system. Each nerve is a telegraphic cord in itself. Happily for us, our nervous system forms a harmonious arrangement of unseen wires carefully buried within us, and deftly concealed from outside observation. When we are glum and dismal, and low spirited, the telegraphic apparatus is out of order, and the nerve forces are demoralized. According to the irregularity of our nerves, so are our irregular moods. If all be well, we are happy and cheery and at peace with all the world; but let the batteries blunder, or the currents cross, or the wires become entangled, then we are irritable, sulky, ill-tempered, or angry. We take offense where no offense is intended, and we impute to others motives which are never conceived by them.

The People's Health Journal.

The saving of the pulp is important. In a child having a small decay in the first permanent molar, you should never use amalgam or gold for filling. You must get the confidence of children, and learn to handle them so as to accomplish the most good, and you cannot do this with amalgam or gold. If you put in oxiphosphate till they are fourteen years of age, watching the tooth and renewing the filling as it needs it, the tooth will be perfectly preserved; if properly done, he would defy any man to find decay. Then you can commence your good work with gold.

H. J. McKellops.

OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[Address all Questions for this Department to Dr. E. N. Francis, Uvalde, Texas.]

Question 232. *Young lady, age fourteen, still has the deciduous upper right central incisor. No sign of the permanent tooth. It looks bad, as the deciduous tooth is very dark, and so much smaller than the other teeth. It is not very solid, so I have doubts of its ability to support a crown. What would you advise me to do ?*

Remove tooth and make a bridge.

F. H. Ellsworth, Wellsville, N. Y.

Should extract temporary tooth, as it is not firm.

Tremont Nye, Wickford, R. I.

I fail to see that extracting will be of benefit.

J. R. Osborne, Shelby, N. C.

I would extract and replace with bridge secured to the other central incisor by an open-faced crown.

Dr. L. D. Sells.

Extract the tooth; put in plate for year or so, with view of producing irritation and to retain space. If permanent tooth does not then appear a bridge can be put in.

S. C. A. Rubey, Clinton, Mo.

Should be extracted at once, and if no sign of new tooth, which will eventually come, insert a bridge central by clasping the two adjoining teeth narrowly. This can be removed when tooth appears, and it will prevent contraction of the space till filled by permanent incisor.

L. H. Henley, M. D., D.D.S., Marshall, Tex.

Let it alone for the present, possibly for eighteen months or two years, till maxilla is fully developed, then if the tooth is not cast off extract, and take the chances for ultimate presentation of permanent central. I have several times extracted under similar conditions after the age of twenty-one, and in the course of eight or twelve months, in each case, permanent tooth presented and took position correctly. Be patient and watchful, and moderate in your efforts to aid nature. Nine chances to one all will come right before period of full maturity.

B. F. Arrington, Goldsboro, N. C.

The plainest part of the case is: The deciduous tooth should be removed at once, and should have been six or seven years ago. No one has, as yet, found any advantage in leaving deciduous teeth an abnormal length of time. The central would, no doubt, have presented itself years ago had this deciduous tooth been out of the way. If you make room for new central by spreading it will come in time, providing it has not started off in some other direction. This can be determined by examination. After enlarging the space by pressure, put in a partial plate with one tooth to retain space, and await natural results. Should nothing develop in time a dummy central could be attached to the present one by a heavy skeleton or open-faced crown.

Will S. Kelly, Wilkesbarre, Pa.

Question 233. *A man, thirty-five years of age, had a decayed upper left first molar extracted to relieve pain, about five years ago, after the application of cocaine. In time the pain appeared to be located in the lower first molar which was sound, and six months later was extracted without anesthetics, followed with swelling of the neck and jaw. After this the pain went to the upper teeth, and he has had all upper and lower teeth extracted back of cuspids. The pain is now located in the alveolar in the region of lower first molar. A small purple spot indicates the place, and he complains of a disagreeable taste mornings. Has not been free from pain for five years, and at times it is quite severe. The alveolar is evenly absorbed from cuspid back. What is the trouble and treatment?*

I think it is a slight necrosis of the alveola; administer an anesthetic and operate.

F. H. Ellsworth.

I would lay gum open at the purple spot, and examine for necrosed bone or impacted root. If the former, use the sulfuric acid treatment; if the latter, extract.

Dr. L. D. Sells.

I don't know what to do. I am not up on the treatment of bad nerves. I think it a case requiring internal nerve correction. I should satisfy myself as to a fragment of fang remaining, and if none, I would "ally" myself with some physician and try to build up the general health. *J. R. Osborne.*

I think this is necrosed bone beneath the purple spot from which inflammation extends over the maxillary nerve causing pain, such as I have had in the treatment of antrum troubles. I am almost certain there is necrosis either above or below, located very near the nerve. This gives the unpleasant metallic taste on awaking. Open the surgeon's door for him.

L. H. Henley, M. D., D.D.S.

Should examine thoroughly for piece of root or decayed bone. Generally if we get two roots to a lower molar we think we have them all, but I have a lower first molar with three separate roots. If a root, extract; if decayed bone, remove the decayed portion and treat with peroxid of hydrogen or sulfuric ether. Treat every day; do not depend on patient to do it. Equal parts of strong tincture of iodin and aconit will afford temporary relief. Use listerin as mouth wash.

Fremont Nye.

This is difficult to diagnose, especially so, not being able to see patient. There are always many questions to ask and many tests to make. We take it for granted the third molars have been erupted and removed—an impacted third molar or bicuspid could cause such trouble. We are inclined to think the first pain was on lower jaw, though apparently on upper. Every dentist has cases where the patient insists the trouble is on one jaw when we know it is on the other, and prove it by operating. My first step would be to cut the gum where the purple spot appears, and make a very thorough search for a small round piece of root which is probably still in the jaw—broken off probably by slight excrementosis, and, being larger than the opening, refuses to appear.

I will say in defense of this diagnosis, that I had a patient who had an anterior lower molar extracted thirty-five years ago, and supposed it was all

out, but still had much trouble, even after the other molars below and all above were extracted. Many examinations were made during the thirty-five years without successful results. I passed a socket elevator down forcibly, at intervals, nearly the whole length of the jaw, and finally found a small opening when the little piece of root (about the size of a BB shot) popped out. One of the strange features was the gums had been healed all these years and no suppuration had taken place.

If you find positively there is no root, than there can be but one other cause, and that, irritation of the mental nerve. It would then be apparent that in extraction of lower anterior molar an abnormal branch of the mental nerve was wounded, or torn from its position after it protuded from the mental foramen, and in time became attached either to the periosteum or gums, and the contraction of the muscular tissue causes constant pressure and pain in the nerve branches. Pass a lancet along from the edge or border of jaw, separating the gum from the bone for about a-half inch, so as to be sure to break up any attachment which might be opposite to where the anterior molar was removed. Then cauterize freely with nitrate of silver. I think the trouble will cease when the wound heals.

W. S. Kelly.

This case is serious and perplexing; difficult to determine and locate cause. As you state the case I diagnose it genuine erratic neuralgia, of persistent distressing and increasing type, and not at all dependent on the teeth as the cause. In my judgment, if every tooth in the mouth was extracted the trouble would not abate, and never will short of a thorough course of systemic treatment. I have known of several corresponding cases, which, after six or eight years duration, terminated in paralysis and death. The swelling mentioned on the neck and jaw, and the purple spot on lower alveola ridge, have no connection with the neuralgic trouble. All such cases should be turned over to medical practitioners for treatment. They do not come legitimately within the sphere of dental practice. We should guard against overstriding and trespassing on preoccupied territory.

B. F. Arrington.

It is very important to know history and occupation of patient. If he is a painter or printer, or is employed in any kind of lead works, it may be lead poison, but I am inclined to think the trouble of syphilitic origin; would prescribe the following:

R.— <i>Watson's iodid</i>	3j.
Hydrag. bin. iodid.....	gr. ij.
Aqua.....	q. s. 3j.

Sig. 5 drops three times a day, gradually increasing to 15 drops if pain is not relieved.

S. C. A. Rubey.

A TELLING BLOW.—Another bulwark of bacteriology is gone. The primary postulate on which the fledgling science chiefly rested was that a specific germ causes a specific disease. Now, recent investigations show that so-called specific germs may be found anywhere in the body, without regard to the nature of the lesion, if their natural pabulum, dead tissue, exists.

Medical Age.

PRACTICAL POINTS.

By Mrs. J. M. Walker, Bay St. Louis, Mississippi.

Persistent Hemorrhage After Tooth Extraction.—

R.—Tinct. digitalis	fljiss.
Tinct. catechu	fljij.
Extr. ergote.	q. s. ad. fljij.

M.—Sig. Dessertspoonful every two hours.

Syringe socket with hot water and pack tightly with absorbent cotton dipped in tannic acid. Place a piece of rubber-dam over the surface and insert a lump of warmed wax with metal covering. Get normal bite from patient and bandage jaws with elastic bandage, after giving one dose as above. After two hours, examine and repeat dose, if necessary, and rebandage.

George A. Sullivan.

[Be careful of this in internal use.—ED. ITEMS.]

Fusible Metal.—

Tin	20 parts by weight
Lead.....	19 "
Cadmium.....	13 "
Bismuth	48 "

Melt together in the order named.

This gives a fusible metal as hard as zinc for dies in crown work. It can be melted and poured into a plaster impression without generating steam, as it melts at 150° F.

C. M. Richmond.

To Adjust Rubber-dam Clamps Painlessly.—Slip over their jaws small pieces of rubber tubing, with the additional advantage of a water-tight fit.

Dominion Dental Journal.

Protection of Pulp Under Cement Fillings.—Death of the pulp under cement fillings is caused by decomposition of the cement by moisture, either from the pulp or from dentin, containing much organic matter. Moisture has an affinity for the acid in the cement compound, causing its decomposition, reaction causing pulpitis, followed by death of the pulp. Covering the pulp with a non-conductor and varnishing the cavity walls constitutes the preventive.

S. B. Palmer.

Gold Inlay Fillings.—When the teeth are too sensitive to permit properly shaping the cavity for the mechanical retention of a gold filling, insert the gold and condense it thoroughly; then remove the filling, wash both cavity and filling with absolute alcohol, and cement the filling in.

R. C. Young.

Adjusting the Rubber-dam Without Ligatures.—Apply the dam and press to place with a pledget of cotton moistened with sandarac. This prevents leakage and avoids injury to the gum by the use of ligatures.

I. D. Patterson.

To Lessen Pain from Arsenic.—Mix the arsenic with anti-pyrin, equal parts. Antipyrin diminishes blood-pressure, relieving the congestion caused by the arsenic.

G. C. Richards.

Turgescence of the Gums.—A little powdered sulfate of copper worked between the gum and the root of the tooth will constringe the gum and relieve in a day or two.

Review.

Removable Root Canal Fillings.—Shape rods of lead, zinc or tin, and imbed them in the canal in a paste of tincture of benzoin and oxid of zinc. Allow the end of the rod to extend into the pulp chamber, and turn the end over, filling over it with gutta-percha. If there is subsequent trouble, it is easy to remove the gutta-percha and withdraw the rod.

J. L. Williams.

To Prevent Nausea in Taking Impressions.—A few drops of spirits of camphor on the tongue will relieve almost instantly, so that an impression can be taken without trouble for the most sensitive patient.

S. G. C. Watkins.

Repairing Vulcanite Plates.—Freshen the surface and wet with kerosene. No under cuts will be needed.

S. B. Palmer.

Antiseptic Root Canal Filling.—Powdered rosin worked into the root canal, and moistened with alcohol till dissolved, makes an antiseptic insoluble root canal filling.

D. V. Beacock.

To Renovate Stiff Separating Rubber.—Separating rubber that has become stiff and hard will recover its elasticity if put into a vessel containing weak aqua ammonia

* * *

Anodyne and Astringent Mouth Wash.—For use after difficult extraction; for lacerated tissues prescribe:

R.—Boracic acid	3j.
Chloroform.....	3ij.
Ext. hamamelis virg	3j.
Listerin	3j.

Teaspoonful in a little warm water.

J. Henry Morgan.

To Give a Fine Finish to Gold Surfaces.—Nothing is equal to oxid of zinc on a brush-wheel, it leaves a beautiful lustrous polish.

H. H. Johnson

Root Canal Filling in Deciduous Teeth.—Oxid of zinc and aristol, equal parts, with enough oil of cassia and vaselin to make a soft putty-like paste. Work into the canals with a hot instrument or nerve broach wrapped with a wisp of cotton.

Chas. Keyes.

Putrescent Pulp Canals.—The application of ether dissolves the contents difficult of access, and by its anesthetizing effect renders drilling easier, its rapid evaporation enabling medicaments to do their work quicker and better.

Dr. Clifford.

Drilling Sore Teeth.—The pain is very much lessened by placing warmed modeling compound on both the buccal and lingual sides of the tooth, holding solidly against the tooth while the drilling is being done.

Dr. Gilmer.

Root Canal Filling.—Gutta-percha filling will cling more closely to the sides of the canal if the canals are washed with ammonia water (one-half per cent dilution).

A. W. Harlan.

Broken Broaches in Root Canals.—A broach broken off in the root of a tooth (and which does not penetrate the foramen) does no harm, but it closes the foramen and makes a good filling. Anything that will close apex of the root is the thing we want.

H. A. Castner.

Root Amputation.—Abscesses which refuse to yield to local treatment and amputation being decided upon, the root should be filled before the operation is performed.

H. C. West.

Salol as a Tooth-filling Material—Precautions.—Salol is readily dissolved by any of the volatile oils or alcohol. All surplus should be carefully removed from around the edges of the cavity and outside of tooth, as it is irritating to the mucous membrane, making an abrasion resembling a canker, the healing of which is hastened by the application of vaselin.

R. M. Sanger.

An Antiseptic Glue.—Iodin, 2 grains; pure cassia, 1 dram (by weight); forms a syrupy solution, which becomes quite hard and almost insoluble; softens by immersing the vessel containing it in hot water. It can be used with great success for the temporary setting of crowns, preserving a thoroughly aseptic condition.

W. B. Ames.

Formalin in Root Canals.—For disinfecting gangrenous pulps that have been open for a long time with abscesses and periosteal inflammation I use 20 to 30 per cent formalin with great success.

D. G. Forsman.

Root Sterilization.—Isolate the tooth with rubber-dam. Dry the cavity as much as possible before removing foreign contents. During the entire operation sterilize by the frequent use of bichlorid of mercury, not stronger than one to three-thousandths. When thoroughly cleansed and perfectly dried, close up for a few minutes with a dry tampon of cotton to allow the last bichlorid to act on any bacilli present. Pack the canal with cotton saturated with pure German beechwood creasote, as an anti-ferment, and for its anodyne effect on the peridental membrane. When this test of asepsis is satisfactory, fill as desired.

J. Y. Crawford.

Sterilized Tablets.—Mix equal parts of plaster, sand and pumice; form into small cakes, and soak in a 3 per cent solution of formalin. Place in drawers and receptacles for napkins, instruments, etc. When put away clean and sterilized, the tablets will keep them sterilized.

J. S. Cassidy.

Root Canal Filling.—Form a cone-shaped piece of lead, or fine-grained wood, and saturate in some antiseptic fluid; coat the surface with oxiphosphate and press firmly, or drive lightly in, cutting off any portion that may protrude. By this method the space is completely obliterated and the ends of the tubuli filled.

J. Taft.

Removal of Devitalized Pulp.—Fibers of cotton or raw silk, tightly rolled in a jeweler's four-sided Swiss broach (from which the temper has been drawn), can, by rotating in the root canal, so entangle a devitalized pulp that it can be removed entire with considerable precision. Remove the foul silk or cotton from the instrument by laying it between the folds of a napkin, with a piece of rubber-dam placed on the outside to protect the finger and thumb from the odor of a long dead pulp.

S. G. Perry.

To Facilitate the Removal of Carious Dentin.—Apply formic acid on cotton, leaving it in the cavity a few minutes. The carious dentin will be found materially softened, no injurious effect being produced on sound tooth substance.

Dr. Dunn, Florence, Italy.

Treatment of Pulpless Teeth.—After removal of pulp fill syringe with Pond's Extract (hamamelis) and force in, bringing away any remnants and controlling apical hemorrhage. Dry with hot air and absorbents, and fill canals immediately with chloro-percha and gutta-percha cones. If convenient fill cavity at same sitting. Teeth so treated are stronger and have a more life-like appearance than when many medicaments are used.

John C. McCoy.

ITEMS.

Accidental spots of blood on the clothing can be removed by the application of pyrozone. *J. E. Woodward.*

* * *

For root canals I use oxichlorid, frequently using a few shreds of asbestos as a carrier. *A. T. White.*

* * *

O, thou invisible spirit of wine, if we have no other name by which we can call thee, let us call the devil!—*Shakespeare.*

* * *

When the pulp is gone the duration of the usefulness of the tooth is limited; but as long as the pulp is left to do its work the tooth will last. I have seen teeth with the pulps alive worn down to the gums. *G. J. Friedrichs.*

* * *

The combinations of tin and gold, and amalgam beneath gold, have been on the increase. The combination of oxiphosphate with metal fillings has been widely recommended, but the fluids of the mouth must not have access to it. *Dr. Jack.*

* * *

Electricity is a practical force in the treatment of dental caries. It is being successfully used for obtunding dentinal sensibility by cauterization, for the removal of caries and formation of cavities, for packing and finishing metal fillings, and for bleaching teeth by cataphoresis. *Dr. Jack.*

* * *

Before attempting to remove tartar from roots of teeth apply ac. sulp. arom. on cotton wool or asbestos fiber, leaving it in the pockets for some minutes will assist the operation greatly. The drug is antiseptic, stimulating and astringent, and acts as a solvent. *Dr. Kirk.*

* * *

A SUBSTITUTE FOR GOLD.—A French journal describes a new and promising substitute for gold. It is produced by alloying ninety-four parts of copper with six of antimony, the copper being first melted and the antimony afterward added. To this a quantity of magnesium carbonate is added to increase its specific gravity. The alloy is capable of being drawn out, wrought, and soldered just as gold is, and is said to take and retain as fine a polish as gold. Its cost is a shilling a pound. *Evening Post.*

To mend plaster casts, soak the broken parts in water a few minutes and then join them with new plaster mixed thin. The dampness of the model will prevent the too rapid absorption of the water in the new plaster, and no trouble is experienced in joining the parts, or even in restoring any lost fragments.

W. F. Relsey.

* * *

MAGIC TOOTHACHE DROPS.—

Menthol.....	3ij.
Concentrated ether.....	f3iiij.
Oil cloves.....	f3ij.
Fl. ex. aconit.....	f3j.

Saturate a peldorf of cotton and press carefully into the hollow tooth.

Merck's Market Report.

* * *

A GOOD ANTISEPTIC.—In the surgical operating-room of the Buffalo General Hospital common ground mustard is now used in preparing the hands for operations, and in sterilizing the surface preparatory to incisions. It is an excellent disinfectant and deodorant, and it is by far the most effective of the vegetable antiseptics.

Dental Practitioner and Advertiser.

* * *

Prof. Gray has recently adopted a very satisfactory method of using gutta-percha. After drying the cavity he saturates it with common rosin cut in chloroform and then presses in heated gutta-percha. It adheres to the walls like cement, and does not pull away. He has found it very satisfactory in the mouths of his own children where he has the opportunity of observing it closely.

Journal Dental Science.

* * *

A large contour filling in a central incisor broke away at the margin of the cavity. I drilled the remainder of the filling out of the cavity, soldered a U-shaped piece of clasp gold to the side of the filling, filled the cavity with soft cement, and pressed the filling to its place. When the cement had hardened I polished filling and it was as good as new.

A. T. White, Geneva, Ind.

* * *

All our senses do not slumber simultaneously, but they fall into a happy state of insensibility one after another. The eyelids take the lead and obscure sight; the sense of taste is next to lose its susceptibility; then follow smelling, hearing and touch, the last named being the lightest sleeper and the most easily aroused. It is curious that though the sense of smell is one of the first to

slumber, it is the last to awake. Hearing, after touch, soonest regains consciousness. Some muscles and parts of the body begin to sleep before others. Commencing with the feet, the slumberous influence works its way gradually upward to the center of nervous action.

The People's Health Journal.

* * *

The other day a patient in the chair pointed to a gold filling in a lower third molar, and said, "Your father put that filling in forty-five years ago," and I found the filling still perfect.

How many of us, of the younger generation, with all of our modern appliances, are building monuments of pure gold, "as Dean Abbott used to call them," that will be pointed to with pride; forty-five years hence, by our children?

C. Edmund Kells, Jr.

* * *

The treatment of erosion by magnesium hydrate; the use of sulfuric acid for enlarging the orifices of root canals, and the filling of root canals with salol, are new and acceptable. The removal of pulps under paralyzation by cocaine, and the bleaching of discolored dentine with ethereal solutions of hydrogen dioxid and sodium dioxid have become more generally effective through intelligent description by various members of our profession.

Dr. Jack.

* * *

That Antwerp is the principal market in the world for ivory is well known. To it buyers go from Germany, France, and England. In 1894, 583,117 lbs. were imported. Prior to 1890 ivory markets were held annually at Antwerp; since that date, however, they are held every month. Of the three principal markets for ivory, Antwerp, in 1894, took 410,066 lbs., London 153,220 lbs., and Liverpool 131,174 lbs. This rate of consumption, coupled with the gradually narrowing limits of the ivory producing area, must soon make it very rare and costly. We may congratulate ourselves that ivory has ceased to take part in the construction of dentures.

Dental Record.

* * *

To assist suction in an upper plate make a circular disk of lead seven-eighth inch wide and one-sixteenth inch thick, make a one-sixteenth inch hole in the center and ream it on one side one-eighth inch wide to form the head of a stud, to which a soft rubber disk is to be attached after the plate is finished. When the packing is nearly completed, place the lead disk on the cast, well forward and press firmly to fit, then close the flask. This lead disk

forms the bed for the soft rubber disk, which must be smaller and thinner than the lead to provide for expansion of the rubber.

The rubber disks may be readily made by punching them out of a pure rubber sheet of proper thickness, with a three-quarter inch wood-cutter, then with a rubber-dam punch a clean small hole in the center. Warm the disk and draw it on over the head of the stud, it will dish up forming a cup, which, when the air is exhausted from above it, will hold the plate firmly.

W. J. Guild, Rolla, Mo.

* * *

To resolder an old soldering with the same karat gold, amalgamate the surface of the solder to be used, which will then flow very readily. The mercury will then be driven off in the heating.

Broaches that have been used in abscessed teeth should never be employed in removing pulps of recently devitalized teeth. Broaches, more than any other dental instrument, need thorough cleansing and sterilizing before use.

Use Donaldson's nerve broaches in preference to all others. They are decidedly the best. Will last longer than any other, and when broken may be worked over by scraping down with the sharpened edge of a file and a piece of ivory. Such a file should be kept in the cabinet at hand, to "re-nick" them when dull.

B. H. T., in Southern Dental Journal.

* * *

Large proximal cavities in the incisors sometimes leave cutting edge or "corner" so weakened that it is hard to decide whether to cut away the enamel and contour down to the cutting edge, or to strengthen with cement and try to save it, which our patient is usually anxious to have us do. If it breaks later, we have found the following a good method of repairing: Apply the dam and dry thoroughly with hot air, after which dress the edge of the tooth to as favorable shape as possible. Next cut back the filling to opposite a sufficient thickness of the tooth, so that a screw can be firmly set without danger of fracture of the enamel. After cutting the thread in the drilled pit for the reception of the screw, with small burs drill pits in end of filling and start new gold, covering end of filling before setting the screw. Build carefully and closely around the screw and complete. Judgment must be used in setting a screw in such a manner as to not encroach on the pulp. This method is not available in a very thin tooth, but has proved successful where I have used it.

H. R. Neepur.

EDITORIAL.

THE SHOCK CURE.

When I see so many men, women and children suffering and dying from inertia, I wonder the physicians have no medicine to cure them. Pity they are not permitted to use the horse-whip or a swarm of bees, or a shock of lightning—anything, to get a move on them.

But soberly, a kick, an insult, or an imaginary alarm—even actual peril, catastrophe, or an earthquake would be an improvement on a moping, sluggish, enervated life. These people forget life means motion—quick, vigorous, wholesome activity. It is much better to have lightning wake us up than die of anemia. A quick movement, revolutionary activity, or some sudden fright would cure half the diseases flesh is heir to.

I knew a man in Northern New York who, for years, had been a helpless, rheumatic cripple. One Sunday, while the rest of the family were at church, the house caught fire. Limping on his crutches to the door of his bed-room, he saw the flames coming up the stairs. Leaping down those burning stairs, without his crutches, he ran two miles. His rheumatism was gone.

An uncle of mine was seriously lame for years. One day, as he was drawing saw-logs, with one end on a snow-boat and the other dragging, and he limping along by their side, the logs suddenly sheered around against him. Instantly he sprang over them to the other side, and he not only saved his life but cured his lameness.

When a physician, I had a desperate case—a woman no medicine could cure. On a sudden I showed her the devil and scores of his imps, all with pitch-forks, to take her to the infernal regions. Instantly she was on her feet, running with all her might—and she was no longer an invalid.

When a dentist in New York City, I hired my office of a Southern lady who had been impoverished of slaves and all her property by “Sherman’s Raid.” For 20 years previous she had been a delicate, complaining, useless invalid. Fright from her

burning buildings, and flight of all her servants shocked her into health. To save herself and children from actual starvation, she and her husband had to go to work at anything which would bring them the humblest food and the scantiest clothing. Such a change of life had brought them what was far better than riches—health, cheerfulness and usefulness.

At sixty years of age, a decrepid millionaire became bankrupt. He had not done a day's work for ten years, and had been attended by two servants constantly. All at once he found forced activity gave him health, and he so managed his shattered business that in five years he had "bread enough and to spare;" and what was better, he was "well and happy, body and soul."

"Do you see those street Arabs playing in the gutter out there?" I said to a wealthy father who had lost two of his beautiful children, and was fearful the other three would soon leave him. "Come to the window," said I, "and see how thinly they are clad; actually playing in the mud, bare-foot, with the thermometer at sixty. Their mother is your washer-woman, and she washes for four other families every week. Their father saws a cord of wood every day. What could your wife do at the wash-board? And how much wood could you saw in a day? You are both invalids, as well as your children, though you are paying two or three hundred dollars a year to a doctor to keep you well. Send these house plants into the garden, and they will grow strong. Go yourself there to dig and hoe; and give your wife wholesome out-door exercise. Betimes take yourself and wife and children into the woods to run and jump and climb. Romping and fresh air and hilarity are the best medicines these girls can have, and they are the best you and your wife can have. Away with these fine clothes for common wear. Put on yourself and on them clothes you are not afraid of getting dirty and wet; then roll in the newly-plowed ground and get all interested in planting and weeding; bathe yourselves in the showers, and enjoy all weathers. Play you are poor, and live and eat and work and sleep as they do; then you will have their appetite and health and happiness."

That father took my prescription; and they found health and happiness, while I lost five patients.

PRICES.

We met an overworked dentist the other day. With a wife and five children he was obliged to work hard, and he was willing to, but it did seem to him that with the large business he had he should be getting on faster financially ; for at best he was living from hand to mouth.

"What are your prices?" we asked.

"O! they are none too good," he replied. "This is a small town, and there are so many dentists that prices are necessarily low."

"But though you have so many dentists and a small town, how is it you are kept so busy?"

"I suppose it is because I have my full share ; for, of course, in every community, we have good, bad and indifferent dentists, and we all soon find our level."

"Yes," we replied, "we are fortunate, as dentists, in being able to fix our own status by the character of our work ; and generally the volume of our work shows its quality. The trouble in your case is, that the community appreciate the quality of your work, and you do not. You take your standard of prices from those who do less because poorer work. You should advance your prices with the quality and quantity of your work. Right alongside of your good work put good prices, and while you would lose many that could not appreciate your effort, you would retain the cream of society, and advance financially in your reputation and your business. You simply show them that you appreciate the value of your work as they do."

This man's condition is that of many others. They have succeeded in advancing the quality and quantity of their business, but have been too timid to advance their prices in proportion.

Obstropulousness should have no place in the character of a dentist. He is only a servant of the public, at best ; and as a servant he should be obliging, deferential and suave. This is not inconsistent with dignity, self-respect and honor, but it is incon-

sistent with arrogance, self-conceit and self-assertion. We are dependent one on another, and the distinction of high and low, rich and poor, master and servant, are only relative, and often misleading, and mischievous. It is our character, intelligence, and mastery over evils preying on society that give us standing, authority and influence. Such men are willing to serve the humblest and bow to the most inferior. It is the small, narrow-minded pusillanimous dentist that demands fawning and flattery.

It is a foolish idea to postpone the treatment or the extraction of an abscessed tooth till after the "inflammation is over." If it must be extracted, the sooner the better, and the easier. If it can be successfully treated go at it at once, and relieve the severe pressure of the gathering abscess. Do not call it an ulcerated tooth ; that is a very different thing, and needs very different treatment, and is much more rare.

In drilling to open the apex, be careful not to go too far. If an upper tooth you may enter the antrum and do much damage ; but go far enough to enter the sack of the abscess. If this can be detached from the apex of the root you are sure to destroy it, for its hold on the end of the root is its only possibility of life. Even if it cannot be detached, if its sack is broken and it is impregnated with a strong astringent, as tannin and creasote, still better if a little oil of cinnamon is added, it will be mumified and destroyed.

Prof. Trowbridge, Director of the Jefferson Physical Laboratory of Harvard College, obtained a distinct impression on a photographic plate by means of the Prof. Roentgen cathode rays acting through wood and pasteboard. The impression has been fixed, and is capable of giving a print on ordinary blue-print or other sensitive paper. This was the second attempt made by Prof. Trowbridge to obtain the desired effect with a Crookes' tube. The first attempt, made a few minutes before, was partly successful.

HOW WHAT WE ARE, AFFECTS OUR BUSINESS.

How easily a man may affect his business for better or for worse by what he is. To make everything go wrong, he need not commit any great immorality or public scandal, or even any prominent indiscretion. There are many little things quite sufficient. It is only to be unkind and inconsiderate now and then ; to be careless and disrespectful occasionally ; to be rough and uncouth to some we think of little consequence. We can see our best patrons run away from us by giving them unnecessary pain, or necessary pain unfeelingly; by treating the delicate and sensitive as we do the strong and sturdy ; and children as we do grown people. It is very easy to lose our business by a little impatience, petulance and fretfulness, a little obstropulence, self-conceit and self-importance. Just get above your business a little in any way, and you will soon have plenty of leisure. A little neglect of the appearance of your office or of yourself, the presence of some offensive odor, or evidence of bad habits, will do it quite as effectually. In fact, we may do nothing and have our patients run away from us. It is simply to be listless and inattentive, sleepy and sluggish ; to be occupied with loafers when patients call, or chance to be out a few times when we should be in, or be indifferent in our work when we think our patient of little importance, or slight our work when it cannot be seen till it comes back to curse us. O, there are many ways for even a skilful and intelligent dentist to lose his business while he hardly knows it is slipping away from him. The very best of us must woo and coax and nourish it all the time. It will get away from us unless we love and cherish it.

It is astonishing to see how far a warm greeting, a genial countenance, a pleasant smile, will go to build up a prosperous business. The reception of a patient with a cordial greeting, an open heartedness, a sympathetic friendship, is a wonderful introduction. A minor act well done, a simple word well said, a casual look reflecting a true character, win esteem. A deaf ear to scandal, a dumb tongue to gossip, and blind eyes to little foibles, will soon make a favorite. Kindness, tenderness, sympathy, though shown

only by a look, or by an unconscious influence, bring you into close touch with your patient. If we are what we should be, and what our most delicate, sensitive and appreciative patrons would have us be, there comes between us a oneness, an intimate friendship, an interesting attachment, that, with good work, is sure to make us a personal and public favorite.

And all this may come about almost without trying ; it is simply living, enjoying and acting out a normal, buoyant, youthful spirit. Trying to be such is the forced effort of a servant, a menial, an attendant ; being such is the condition of the innocent, unsophisticated, loving child ; and we should never lose our simple-hearted childhood. The child does not try to be innocent, friendly and social ; it is good and lovable by nature, and we need not, and should not lose that nature in maturer years. We may have more than the innocence of childhood, we may be virtuous, the conqueror of evils ; more than their goodness, righteous, the outgrowth of goodness ; more than their loveliness, loving, the activity of loveliness. And this is not so hard if we throw off the evils and give ourselves up to right doing, from the very love of the true and the right. We may be habitually good, just as some are habitually bad; and habit, whether good or bad, binds and strengthens us to do its bidding.

AN EVIL TONGUE.

O, you malignant, hateful, deceitful tongue ! Why will you besmear everything with your slimy venom? No life is safe in your presence ; no character is free from your foul aspersions ; no spirit is so innocent, confiding and lovable as to escape your poisoned arrows. Where have you been that you should be so "set on fire of hell?" What business have you among respectable people, throwing from your hissing fire such red-hot filth? Back, back to your native regions, you destroyer of all goodness.

But, my friend, do you not know you can slander your neighbor terribly by very soft, oily, and almost truthful words—by even avoiding words, and using only the blandest insinuations? The evil tongue is never so piercing in its murderous work as

when it whispers and employs the eye to wink, and your ear to bend low to catch its hidden meaning.

The evil tongue is never so happy as when it can say something against the most honored of society. It matters not if there has been a whole life of usefulness, philanthropy and pureness of character ; let one act or sentence, or even rumor of evil be gossiped, and this devil of mankind rolls it as a sweet morsel under the tongue till the saliva is all charged with it, and then, like a great spatter of nasty tobacco juice, it spits it in the very face of the defenseless victim.

I have seen children that liked to be noticed, that love flattery, and would do almost anything to be applauded. Such children cannot be depended on for steady, faithful industry and goodness. And so we children of larger growth must not try to live on such vanity. It is pleasant to have the good opinion of our friends, but it is poor food to fatten on. We shall often be mortified and disappointed. We must do our best, seen or unseen, approved or unapproved ; do it for our own good, though we are unnoticed by all the world.

There will come a time when faithful work will be appreciated. It will be when our work shall be so improved as to improve ourselves in all there is of us. Such improvement will stand by us and be our best reward under all vicissitudes. There is no surer or better reward.

The restoration of speech from the cure, or application of devices to bridge cleft palates, is sometimes almost immediate; it is generally very gradual. This may not be because of the extra skill employed in one case over another, but because of the difference in the cause and condition of the lesion. If it is congenital, the best apparatus will only gradually restore speech, and then only by the intelligent and persistent efforts of the patient; but if it is acquired—that is, from accident or disease—restoration of speech may be speedy. Great difference in results will also depend on the age of the patient and the extent of the lesion.

HOW WE SPEED ALONG.

For no like period of the Christian centuries has there been such improvements in science, art and mechanics, as during the last twenty-five years.

Of all these, perhaps, none are more marvelous and useful than the discovery of "the cathode ray," by Professor Roentgen, and the cure of consumption by Dr. Cyrus Edson.

Scientists the world over are startled out of their proprieties by the announcement and demonstration of this mysterious ray in photography shooting up under favorable circumstances, giving unmistakable expression of physical conditions heretofore entirely hidden. The very skeleton of the body is revealed through its fleshy covering; a bullet or other foreign object is distinctly located; ulcerated and other diseased conditions are brought to view. Some metals, as aluminum, hidden under reams of paper or other material, are distinctly seen, with even the figures which may be on their surface.

We have had before this many announcements of the discovery of a cure for consumption, which have proved fictitious, but this one of Dr. Edson seems to stand the test of the most palpable demonstration. So may it be.



MATRIX OR MATRICE?

There are two reasons why we think the term matrice should be used when speaking of this dental device.

1. Because the plural is matrices. We never speak of matrixes, and it is awkward to say matrix for singular, when the plural is matrices.

2. The specific meaning of the two terms forbid it. Matrix is a medical term, coming from the word mother, and refers to the womb. It is not that which gives shape to a thing, but which contains the fetus; while matrice is a mechanical term used for that which gives shape to something, as the matrice used to give form to the tooth filling or the printer's type.

WE ARE WEAVING OUR LIFE GARMENT.

That is a beautiful figure of our Saviour where He represents the garment we are expected to wear at His marriage feast. He says we are to be put to shame if we appear at the feast without it. Do we sufficiently reflect that He expects us to weave it? Yes; this life is the vestibule, and in it we are expected to prepare our robe before entering into His presence.

And this garment is made by every movement of the shuttle of life. God puts the warp into the loom, we work in the woof; and therefore it depends on us to say what shall be the character of our garment. Its figure and texture and worth depend on every act of life. In weaving it let us be careful to have clean hands and skilful fingers, and attend well to every detail, lest what should be a beautiful design be marred, and the whole fabric worthless. What a shame it will be to appear before the King, naked!

"We all know better than we do," is an often quoted phrase. I hardly think it is true. At least, I believe there are those who do the best they know, and are continually seeking to know how to do better. They make no noise or fuss about it, sound no trumpet before them, but just dig, dig, dig. And they are sure to find something worthy of their effort. However unpromising their talents or opportunities, you wake up some fine morning astonished to see the change in their circumstances and appearance. They have been digging. They have dug just the best they knew how, and that was better and better, as they have acquired knowledge and skill and opportunity.

My friend, go and do likewise.

Dr. N. R. Macalaster says that in vulcanizing rubber between metal to produce a smooth surface, the metal can be more easily removed from the plate and a polished surface left if quicksilver be rubbed on the surface of the metal before packing the rubber.

IGNORANCE OF THE NATURE OF TARTAR.

Some time since a lady presented herself for some fillings in her teeth. They were so loaded with tartar I could scarcely find the cavities.

"I must first remove this tartar," I said.

"O, no," she replied, looking to see what I meant, "that grows there. You would destroy my teeth if you removed that. It belongs there."

All my reasonings were unavailing. She was too ignorant to be instructed. Unaware to her I removed what was really in my way and left the rest. The next day she returned in great alarm, saying:

"Doctor, I have broken a large piece off one of my teeth. See, here it is. I have come twenty-five miles to see what you can do for me. It has split off one of my lower front teeth, and I do believe more than half of the tooth is gone."

Of course it was only an incrustation of tartar, and, after explanation, she was now persuaded to have the rest removed from all the teeth. After it was done, she said, "It seems as though I had lost more than half the substance of my teeth."

Patients must be instructed in these things, and when they still assume to dictate what they will have done, and what they will not have done, they must be taught that they are not well enough informed to know what is best. Filling teeth, as we did in this instance, with a quantity of tartar left covering the teeth is a disgrace to both dentist and patient.

Many dentists need instruction in this very thing of removing tartar. Its mere removal is not enough. The teeth must be left smooth and polished. Particles under the gums must be carefully though thoroughly removed. Plenty of time must be taken, generally two sittings, to do the work well, and without injury to the enamel and to the cement of the necks of the teeth. Patients must also be taught that our time in this operation is worth as much as in filling. If necessary this should be mentioned beforehand; for somehow many patients have the idea that this work will be "thrown in." Fill no teeth before this cleaning.

HINTS.

Applications of listerin and glycerin, equal parts, is good for the thrush.

* * *

Dr. J. A. Frazier says that he has had success in bleaching dark joints in porcelain teeth with twenty-five per cent pyrozone.

* * *

Magnesium sulfate, in ten-grain doses daily for several weeks, is good for warts.

* * *

For tenderness of a tooth after root canal filling Mr. Baldwin uses fluid extract of Jamaica dog-wood.

* * *

Dr. Abbott is always in favor of saving the pulp of teeth alive. He considers it not much less than a real crime to wantonly destroy the pulp of a tooth.

* * *

The best test of a dentist's intelligence and skill is his ability to save abscessed teeth. If he can successfully treat these it is a proof that he can do anything else.

* * *

One of the greatest triumphs in medicine, whose benefit is beyond possible estimate, is the successful treatment of diphtheria with antitoxin. Of 300 cases and 163 cases, 74 per cent and 85 per cent respectively were successfully cured.

* * *

Often when we see a great man, like a ship, sailing proudly over the current of renown, there is a little tug—his wife—which you cannot see, but which is directing his movements, and supplying the motive power.

* * *

Statistics are said to show that young men do not, on the average, attain full physical maturity till they arrive at the age of twenty-eight years. Professor Scheiller, of Harvard, asserts, as the result of his observations, that young men do not attain to the full measure of their mental faculties before twenty-five years of age. A shrewd observer has said that "most men are boys till they are thirty, and little boys till they are twenty-five; and this accords with the standard of manhood, which was fixed at thirty among the ancient Hebrews and other races.

The year has been as much distinguished by the loss of such great leaders as Professor Riley, United States Entomologist; James Dwight Dana, Pasteur and Thomas Huxley, as by its discoveries and achievements.

* * *

In freshly-exposed pulps, if you place a little iodoform and glycerol over the pulp, covering that with asbestos paper, and that again with oxiphosphate, after the cement has set, you can put in a gold filling of any kind, and you will never cause any pulp-irritation.

* * *

A USEFUL PLASTER.—Take a piece of blotting paper, the size required, saturate with mastic varnish or carbolized resin, pulverize a tabloid of cocaine, spread on surface and apply, the varnish will hold cocaine where required, and lips, tongue and throat will not be affected; the result in all painful cases is most gratifying.

* * *

Mighty intellects are mighty things to have. But in the race of life, little men often outstrip big men. We may all have the qualities for success, if not greatness. Almost any boy or girl may have precision of action, decision of character, presence of mind under emergencies and stick-to-it-iveness. Make these prominent and success is assured.

* * *

"The time is coming," says Dr. Stevens, "when the student of medicine will have the same opportunities of studying dental pathology as he now has of studying diseases of the eye, ear, throat," etc. We should impress on our medical friends the fact that intelligent dentists should be consulted by them in cases where disturbances of the nervous system do not readily yield to general treatment.

* * *

There is perhaps to-day no subject engaging so widely the attention of the dental profession, or one that deserves in so great a degree their profoundest thought and investigation, as that of amalgam. A few hold the opinion that operative dentistry has been degraded by the introduction of amalgam. I have no sympathy with these views, opposing, as they do, a material which, in the hands of competent and conscientious men, has proved its right to existence and recognition as a valuable aid in the preservation of tooth-structure.

FOR OUR PATIENTS.

SAG HARBOR, N. Y., January 25th, 1896.

DR. WELCH.

Dear Friend:—Your editorial, “The New Year,” touched a chord of sympathy, and suggested the following.

W. S. Elliot, D.D.S.

WHEN I AM OLD.

When I am old will life then seem
As now to me, a radiant beam,
And love shed forth its brightest gleam,
When I am old?

When I am old will then the years
Go swiftly by, devoid of fears,
And sorrow's inmost gushing tears,
When I am old?

Or will they then be “staid and stalk,”
And burdened oft my daily walk,
And care my each high purpose mock,
When I am old?

Roll on eventful years of Time,
Repeat for aye the good old rhyme:
“ ‘Tis better on”—with youthful prime,
When I am old.

Though silvered locks now drape my brow
And staid my steps, and heart-beats slow,
Am looking—looking yet to know,
When I am old.

The future seems nought else but bright,
My spirit throbs with fond delight,
I know a Hand will guide me right,
When I am old.

The good work and influence of the National Associations of Dental Faculties and of the National Associations of Dental Examiners are becoming more and more potent. The standard of our colleges, of our State associations, and of the profession generally, are improved by them. Let our standard be national, both of admittance into the profession and of social and legal standing in it, and we shall soon find less chaffing, irregularities and questionable measures in our colleges and associations, and more dignity, learning and skill.

THE SALTS IN THE OCEAN.

The salts of the sea have fed throughout all time countless living things which have thronged its waters, and whose remains now form the rocks of continents or lie spread in beds of unknown thickness over 66,000,000 square miles of the 143,000,000 square miles of the ocean's floor ; they have lent the substance to build the fringing reefs of the land and all the coral islands of the sea, and there are at present, on the basis of an average salinity of 3½ per cent, in the 290,700,000 cubic miles of water which make up the oceans, 90,000,000,000,000,000 tons, or 10,173,000 cubic miles, of salt. This is sufficient to cover the areas of all the lands of the earth with a uniform layer of salt to a depth of 1,000 feet.

It seems that the sea was made salt in the beginning as a part of the grand design of the Creator to provide for the system of evolution which has been going on since the creation. Many distinct species of living organisms exist in the sea as a result of its salinity, and their remains have largely contributed to the growth of continents. The three great factors in accounting for the system of currents in the ocean, by which it becomes the great heat distributor of the globe, are changes of temperature, the winds, and salinity. The last mentioned becomes an important factor through the immediate and essential differences of specific gravity and consequent differences of level that it produces in different parts of the ocean through the action of evaporation and rainfall.

Appletons' Popular Science Monthly.

THE INFLUENCE OF ALCOHOL ON LONGEVITY.

Dr. Crothers, of Hartford, who has had long experience in the management of institutions for the inebriate and insane, says that "inebriety is the active cause of from fifteen to fifty per cent of all insanity ; from thirty to eighty per cent. of all idiocy ; from sixty to ninety per cent of all pauperism, and from fifty to eighty-five per cent of all crime," then asks the question, "Who can estimate the relief of the taxpayers by the removal of the perils to both property and life from drunkenness?"

Dr. Day, of Boston, in his late annual report of the Washington Home for the Treatment of Inebriates, says : "On the individual the effect of vicious alcoholic indulgence is disease of the body. Sooner or later it must succumb. Disease of the mind is not far off. It may be delirium or insanity."

Dr. Formad found in the dead house autopsies of the Philadelphia Hospital, that in two hundred and fifty chronic alcoholists nearly ninety per cent had fatty degeneration of the liver; sixty per cent had congestion or a dropsical state of the brain; the same number an inflamed or degenerated stomach, while not quite one per cent had normal kidneys.

To be convinced of the cause of so much pauperism in the country, we have only to examine the statistics of the liquor traffic in the United States. "According to the report of Internal Revenue Commissioner Mills, for the year 1892, the patrons of the saloons paid \$609,000,000 for whisky and \$617,258,460 for beer, a total of \$1,226,259,460, the interest of which for one minute at six per cent per annum is \$8,515.68." This would more than pay off the national debt, and would feed and clothe all the poor of the country.

When we look abroad over the world and take a bird's-eye view of the evil effects of intemperance in its various aspects, its production of disease and death, the destruction of happiness and home, pauperism and crimes innumerable, with general demoralization, we are astonished that any thinking man, much less a physician, should come to the conclusion that drinking men and drunkards enjoy greater longevity than total abstainers.

The Medical Progress, April, 1895.

THE LIFE AND GROWTH OF THE TOOTH.

Dr. D. D. Smith, Philadelphia.

The full apprehension of the fact that the different formations which make up the body of the tooth receive life and nourishment from two distinct sources, the pulp and the pericementum, and of the phenomena arising from it, will greatly assist in establishing rational and substantial methods for the treatment and saving of teeth. The pulp, which is made up of nerve-tissue and of vessels for the supply of nutriment and for taking up waste, is the important factor of every tooth. To it is committed the care of the newly-erupted tooth, to readjust, recalcify, consolidate, strengthen and sustain the enamel and dentine. Hence the importance of keeping the pulps of young teeth in a condition of healthful activity, carefully guarding them against any encroachment through decay or manipulation. The teeth in mastication, for children, is of more importance than inheritance as a factor in determining the character of the teeth. Natural and healthful mastication, the

true cleaner of the teeth, would alone force that exercise required by the pulp and peridentium. Devitalization of the pulp at an early period of life carries with it retrogressive changes in the quality of tooth-material without power to arrest it.

So general is the action of the pulp in rearranging, depositing and solidifying the materials of the dentine and enamel of young teeth, that a tooth, fragile and imperfect at eruption, if introduced into conditions of use and cleanliness, and the pulp protected, may be built into an organ of good type, practically decay-resisting. Isolated instances of this have been observed, but are regarded as exceptional rather than as the true expression of pulp-action. Are not the teachings of the past and present wanting in giving the position of supreme importance to operations on the externals of the tooth, and would it not be more in harmony with the true science of tooth-building to emphasize pulp-protection in young life?

Cosmos.



THE GULF STREAM.

Remarking on some of the geographical charts now available to the student of physical science, it is pointed out by a writer that, elsewhere in the world, there is not so majestic a flow of water as the gulf stream, a remarkable body having its headquarters in the Gulf of Mexico, from thence flowing northeasterly along the shores of the United States to the banks of Newfoundland; then rushing across the Atlantic Ocean to the British Isles, it is divided into two currents, one flowing northward to the Atlantic Ocean, the other southward to the Azores, and the velocity of this immense flow being also more rapid than that of the Mississippi at New Orleans or even of the Amazon, at one hundred miles above its mouth. Phenomenal, too, is the fact, though its bed and banks are cold water, yet the vast stream is very warm, and so great is the absence of affinity or commingling between these waters, that their line of junction is distinctly visible to the eye. Further, the waters of this wonderful stream do not, in any part of their course, touch the bottom of the sea—they are defended at the bottom and sides by what has been termed a trough of cold water, one of the best non-conductors; consequently, very little heat is lost, and the warm water is carried thousands of miles, losing only four per cent of heat on the journey from the Gulf of Mexico to the British Isles.

Sun.

BLESSINGS OF SOUND SLEEP.

Sleep is regarded as the time when only good arrives to the sleeper, and in the case of adults this is so ; with children, however, it is different. The actual fact of sleep is good, but the manner of sleep is not always so, by any means, for during these periods of repose a child may contract a habit of position which will cause a lasting deformity. Children are often put to sleep always on the same side. The mother finds them less restless so, and thoughtlessly lays them that way. Sometimes this restlessness is caused by physical defects, but it mainly arises from habit. No creature on earth is more liable to habits than a tiny, soft baby that you wouldn't think could possess any distinct quality. A mother, for some reasons peculiar to herself, finds it most convenient to place the little one on its left side, we will say, for about three days ; when the fourth day arrives, master baby decides there is something wrong if he be put on his right side, and forthwith begins to squirm and twist till he fidgets himself awake. Mamma places him on his left side and he serenely settles himself.

Constantly lying on one side will make a difference in the size of the limbs on that side, and will even cause that side of the face to remain smaller than the other. Children will also draw up one leg in their sleep. This, too, becomes a fixed habit, and by the time the child has learned to walk a difference in the length of the two legs is noticed, a misfortune which might have been avoided had the mother been careful to watch the habits of the sleeping baby. In the bringing up of children it is not so much the care over larger things that counts, but the constant watchfulness over the "little foxes that destroy the vines."

United States Health Reports.

JUST LIKE HIM.—Wife : " Such a dream as I had last night, dear."

Husband : " May I hear about it?"

" Well, yes ; I dreamed I was in a great establishment where they sold husbands. They were beauties ; some in glass cases and marked at fearful prices, and others were sold at less figures. Girls were paying out fortunes, and getting the handsomest men I ever saw. It was wonderful."

" Did you see any like me there, dear?"

" Yes ; just as I was leaving I saw a whole lot like you, lying on the remnant counter."

NOTICES.

The twentieth annual meeting of the Vermont State Dental Society will be held at Queen's Hotel, Montreal, Quebec, Wednesday, March 18th, 1896.

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The State Associations of Nebraska, Iowa, Kansas and Missouri have arranged to hold a great joint meeting at Excelsior Springs, Mo., June 23d-26th, 1896.

Most of the States have abandoned their regular annual meetings, and preparations are now about completed which assure every dentist who attends a rare treat. *C. S. A. Rubey, Secretary.*

* * *

Fifteen dentists of Quincy, Ill., met at the Young Men's Business Association rooms and organized a society. Constitution and By-Laws were adopted, and the following officers were elected :

President, Dr. R. A. Gardner; Vice-President, Dr. Geo. W. Thompson; Secretary, Dr. Henry L. Whipple; and Treasurer, Dr. Harry W. Wellman. Executive Committee: Drs. Gilmer, Baker, Brown, Irwin and Hug.

* * *

The Los Angeles Association of Dental Alumni was organized February 10th, 1895. Its members must be graduates of reputable dental colleges. It has a membership of twenty-four. The following are its officers :

E. G. Howard, President; W. C. Smith, of Pasadena, Vice-President; W. A. Smith, Treasurer; L. E. Ford, Secretary. Board of Directors: J. D. Moody, F. H. Sawhill, B. W. Day.

* * *

The Alabama Dental Association will hold its next meeting at Hotel Albert, Selma, April 14th to 17th, inclusive. The forecasts indicate a splendid meeting, and everything possible will be done from now on to bring about its realization. Arrangements for the usual railroad rates will be made. The Board of Examiners will meet at the same time and place, and all who contemplate entering practice in the State should be present and be examined. The law against practicing without license is very clear, and the authorities will receive the hearty support of the profession in its enforcement.